KEY MONITORING INDICATORS OF THE NATION'S HEALTH AND HEALTH CARE AND THEIR SUPPORT BY NCHS DATA SYSTEMS

FINAL REPORT

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Questions to be addressed in work supporting comprehensive monitoring of factors determining the Nation's health and health care are as challenging as they are important. A range of relevant health perspectives and policy experience is needed. This project has greatly benefited from viewpoints and insights contributed by a number of people.

At critical points through the project, guidance was provided by members of the NCHS Key Indicator Working Group. Experts in health care issues in a number of other agencies also gave their time to participate in interviews, review the work in progress, and provide insights. Interview participants included: Ross Arnett, Thomas Ault, Barbara Cooper, Catherine Crawford, Paul Elstein, Cliff Gaus, Barbara Gayle, George Greenberg, Wilma Johnson, Martha Katz, Roz Lasker, Regina McPhillips, Michael Millman, Gaylon Morris, Robert Moore, James Scanlon, and William Taylor.

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Susanna Ginsburg and Theresa Mullin
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CHAPTER 1:

INTRODUCTION TO THE REPORT ON KEY MONITORING INDICATORS AND THEIR SUPPORT BY NCHS DATA SYSTEMS

This report represents the final product of work performed by Lewin-VHI for the National Center for Health Statistics (NCHS). The purpose of this project was to evaluate the adequacy and appropriateness of information collected in NCHS data systems to support key monitoring indicators for health reform. NCHS will use the results of the evaluation for guidance in strengthening and revising its data systems to meet the need for producing a widely accepted set of key monitoring indicators for the Nation. Other related objectives of the project include the development of a conceptual framework for classifying and evaluating key indicators, and identification of an ideal set of key indicators as well as sets of indicators that can be obtained immediately and practically. This includes identification of indicators and areas not covered by NCHS data sets but where other data sets are available for the generation of appropriate indicators.

This report presents Lewin-VHI findings to address these issues, and recommendations to the NCHS Key Indicator Working Group (KIWG), an NCHS internal working group that serves as a primary audience for this analysis.

1. NCHS Recognizes the Need for Systematic Monitoring of the Nation's Health, Including Health Care, for Health Policy Planning

As the Nation's health statistics agency, NCHS provides information used to develop national health policies. This project is part of an on-going effort to plan a comprehensive monitoring system, originally intended to track short and long-term impacts of health reform and to provide feedback for policymakers. Over the past few years NCHS has been working with the Office of the Assistant Secretary for Health (OASH) to define the various elements of that system. The system was anticipated to require a relatively small set of indicators to provide summary information on the long and short term impact of health care reform on the health system and the U.S. population. In the health reform briefing papers prepared by NCHS for the OASH, key monitoring areas identified include the following:

- Population health status;
- Public perceptions and opinions.
- Access to care;
- Utilization of health services and clinical prevention services;
- Health insurance;

. Health expenditures;

. Quality and outcomes of care;

. Provider behavior and attitudes; and

. Consumer satisfaction with care.

Although originally described as a system for monitoring the impact of the proposed Health Security Act, NCHS envisioned that the system would be designed to inform health policy regardless of the ultimate shape and timing of health reform.

NCHS recognizes as part of its mission the improvement of methods of monitoring key indicators of the nation's health, including health care, on a systematic and regular basis. Given the current shift of health reform activity away from the national level, towards state-level reform, the need to systematically track key elements of health and the health care system across the nation, to be aware of changes, and to understand "what works" becomes all the more imperative. The need to identify currently available data sources has focused this project's efforts at the national level, although systematic data collection for state and local-level monitoring may eventually be feasible. To support a later examination of issues for state level monitoring of reform, we present in Appendix B an analysis classifying key elements of current state reform efforts, relevant indicators and potential data sources.

In the near term, it is anticipated that data for key indicators for national level monitoring would be extracted from existing NCHS data systems, to the extent possible, and also be obtained through quick-turnaround surveys of households, health providers, and employers, often drawing on NCHS data systems. In addition to assessing the current and potential capacity of NCHS data systems to support identified indicators, the project involved identification of other external data systems that may be available to support the indicators, and identification of additional areas of research and new approaches to be pursued.

The three major tasks within the scope of this effort were:

- Development of a conceptual framework for classifying and evaluating a set of widely accepted key indicators for monitoring the nation's health and health care, in the performance areas identified by NCHS.
- Identification of indicators within those performance areas, and assessment of the adequacy of NCHS data systems and other data sources to "immediately and practically" support identified indicators.
- Identification of areas where further research, indicator development and data collection are needed.

To guide the development of a key indicator monitoring system, NCHS specified a number of system performance criteria including the ability to: track short-term and long-term

impacts of health policy changes; provide feedback to policymakers; gauge general directions in the health care system; provide "alerts" for areas needing further investigation; and provide indications of the future direction of the health care system, as well as how it performed in the past.

In addition to these system characteristics, specified criteria to consider in evaluating candidate indicators include the variability of a measure over time; and the extent to which changes in the area to be monitored will be reflected by changes in the measure. Indicators that represent good candidates for inclusion in the monitoring system would then be used to assess the capacity of NCHS data systems to provide the required information.

2. Lewin-VHI's Identification of Candidate Monitoring Indicators Involved a Survey of Previous Work and Interviews with Health Policy Experts.

The progression of tasks performed within this project provided a good basis for the development of a framework to address issues affecting acceptance and use of the monitoring system and indicators by a wider audience. The preliminary set of indicators identified for more in-depth analysis and data systems evaluation provide information in the nine areas listed above. The following discussion outlines key steps in the analysis.

a. *An Extensive Review of the Literature on Indicators of Health and Health Care was Conducted to Identify an Initial Set of Candidate Indicators for a National Monitoring System.*

The project effort began with an extensive review of the available literature describing indicators proposed or currently in use for tracking health and health care. The review of these sources focused on indicators relevant to one or more of the nine areas of primary interest to NCHS, listed earlier. The literature review also considered the degree to which these indicators could be applied to national level monitoring, and be disaggregated to track the status of health and health care for particular demographic subgroups of special concern to policymakers.

Attempting to sort indicators according to the nine areas identified for monitoring presented difficulties, because most of these areas are interrelated. For example, ***access*** to care is partly a function of an individual's ***health insurance*** status. Health ***expenditures are*** partly a function of health service ***utilization.*** Levels of care ***utilization*** are also dependent on ***health insurance*** coverage. Consumer satisfaction and public perception can also be related to the extent of health insurance coverage, ***access*** to care and ***the quality*** and outcomes of care. Provider behavior and ***attitudes*** can also be affected by the benefit design and payment policy specified in ***insurance*** plans.

Our review of existing indicators has shown that existing and proposed indicators tend to be developed for use at one of two levels: population-based community level (e.g., the nation, state or county), or at the individual health plan or provider (i.e., components of local delivery

system) level.' Many of the community-level measures address health status, access, outcomes, cost, and in some instances, utilization. Health plan and provider performance measures have typically been developed to help employers and consumers evaluate and select among plans to address access, quality, cost, and outcome measures to address quality.

From the several hundred measures identified in this review, a "short list" of over eighty indicators was developed for further consideration by the NCHS Key Indicator Working Group (KIWG). This list represented the set of indicators cited repeatedly across different research and monitoring efforts included in our review, that were also directly applicable to one or more of the nine areas specified by NCHS.

b. Interviews with Members of the KIWG Provided Additional Criteria to Guide Indicator Development.

Following the presentation of our initial review and synthesis list of indicators, the KIWG provided further guidance on the direction of monitoring indicator development. The guidance suggested important criteria to be used in selecting indicators. The indicators identified should ideally be meaningful both to the general public and policy researchers. The set of health indicators should include ones that inform decision makers about both the future direction of the system and how it has performed in the past, as widely-cited economic indicators do (e.g., leading, lagging or coincident indicators of the economy). To the extent possible, indicators should also be "actionable": implying a focus of change in policy to address the problem identified by the indicator. The monitoring system could be organized in terms of tiers of indicators with a relatively short list of primary indicators that could be supplemented by a more detailed secondary list.

c. To Reconcile the Need for a Limited Set of Indicators, Candidate Indicators Were Organized into Lists of Primary and Secondary Indicators.

Based on KIWG input, a short list of about thirty primary indicators have been identified focusing on the areas of monitoring initially identified by NCHS. A set of secondary indicators was also developed to provide more detail for certain populations, system components and problems.[2] The KIWG reviewed, suggested revisions, and approved the list of primary indicators for more systematic analysis. The analysis included both evaluation of the proposed indicator with respect to the area to be monitored, and the ability of NCHS data systems to support the indicator.

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1 Appendix C presents key reference tables of indicators and sources cited in the literature review.

2 The secondary list of indicators identified in our analysis is presented at the end of the Appendix A analysis of the indicators in the primary list.

d. *Lewin-VHI Conducted Interviews with Other DHHS Experts to Identify A Broader Set of Monitoring Needs.*

The indicator review and development efforts made to date were presented to health care experts in other offices and agencies[3] within DHHS, for review and input. The interviews were helpful in identifying other areas of health system monitoring considered important to a broader audience of policymakers, and in identifying additional resources for indicator development and data collection to meet the needs of an expanded monitoring system. External interview input highlighted the need for more detailed tracking in many areas of personal and public health services that would extend data collection requirements well beyond what federal data collection efforts (including the surveys of NCHS) currently support. The interdependence of our nine identified performance areas was also noted. This implied the need for a different basis for structuring a framework for classifying indicators for monitoring.

As the project has progressed and the needs of a broader audience and set of factors have been considered, the scope of the needed monitoring system has expanded. Responding to this, the project team has developed the outlines of a broader system, but has not undertaken to identify and analyze all of the indicators that such a system should include. Although accommodation of this broader set of interests and information needs cannot be fully achieved within this project, the conceptual framework presented in Chapters 2 and 3 of this report provide a vehicle to systematically address broader monitoring concerns. It is anticipated that this would be addressed by a "Consensus process" that will follow this project effort. In the chapters that follow, both the broader system concept and a more focused indicator analysis are presented.

Overall, several important factors have shaped the direction of this work since the start of the project. These include:

- The Health Security Act was not enacted, and public support for sweeping reform initiated at the federal level has eroded.
- Private and state-level changes are continuing to occur, with some private market changes occurring rapidly.
- Public spending on health and health care may be reduced at the Federal, state and local level over the coming years, in response to apparent public support for reduced government spending on public services.
- Coupled with reduced spending, there is increasing demand for public program accountability. This includes effective communication of why a particular service is critical and should be provided by the public sector, and how effectively and efficiently public services are being provided. As lawmakers and program administrators look for

[3] Interviews included meetings with experts in ASPE, AHCPR, CDC, HCFA, HRSA and OASH.

ways to control the cost of public programs, timely and accurate reporting of program performance becomes increasingly important.

As a consequence, we believe that a system of monitoring indicators must:

- Be broad enough to track all key factors driving health outcomes and utilization of health care services, and not be narrowly focused on a particular piece of federal or state legislation currently under consideration.
- Be able to provide "intelligence" to policymakers and other players, to track and understand how the health care system is currently configured and the direction in which it is changing at a given point in time.
- Provide alerts about individual and community health problems linked to reduced public spending, so the public will know if and when spending cuts begin to create more public risks than benefits.
- Piece together a coherent story about the health care system, to help the policymakers and the public better understand the health care system of which they are a part, including who (public or private) is providing what (personal or public) services and why (e.g., reduction in health risk versus cost).

More basic indicator development work is clearly needed and an information "infrastructure" must be pieced together to achieve the level of monitoring implied by the system meeting the requirements of this list. This would likely require the prioritization of efforts to build specific monitoring capabilities, a coordinated effort across public agencies, and partnership with private organizations that would both use and supply needed data.

3. Lewin-VHI Development of a Broader Indicator Monitoring Framework Supports the Goal of Wide Acceptance, while Detailed Analysis of the Preliminary List of Indicators Supports the Goal of Specific NCHS Data Systems Evaluation

The tasks required in this project address several different levels of analysis required for a monitoring system to support health policy in the longer term as well as in the near term. These tasks are logically connected, however, as shown in ***Exhibit 1.***

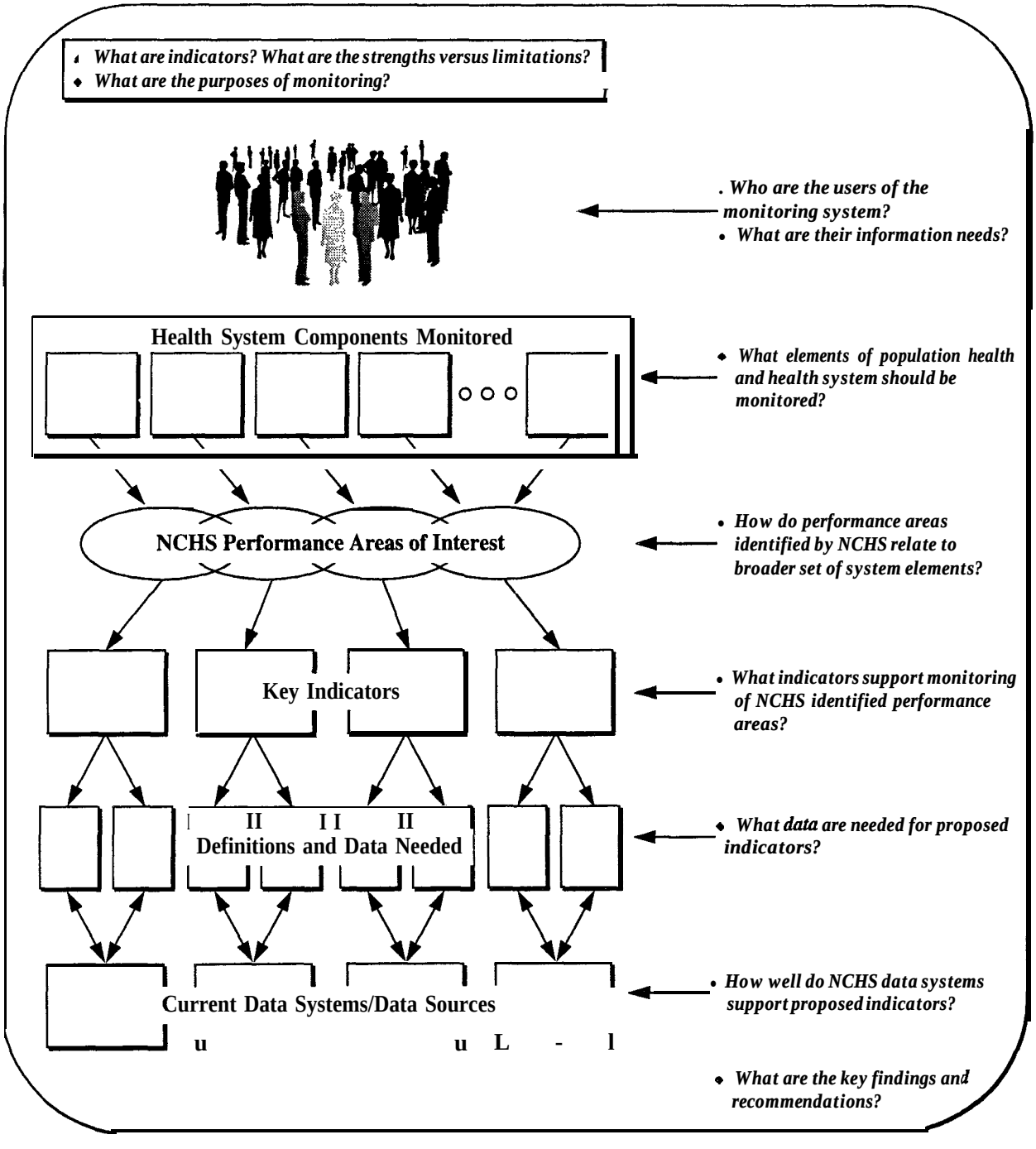
To develop a framework for classifying and evaluating monitoring indicators to produce a set that will be widely accepted, several fundamental questions must be addressed. These include:

- What is an indicator, and what strengths and limitations do indicators present for policy support?

- What are the purposes of monitoring?

EXHIBIT 1

FRAMEWORK FOR KEY MONITORING INDICATORS AND SUPPORT BY NCHS DATA SYSTEMS



- Who will be the users of the monitoring system and what are their particular information needs?
- What elements of population health and the health care system should be monitored to meet these needs?

Identification of key indicators to monitor in the NCHS-specified areas, and evaluation of NCHS data systems ability to support those indicators, requires greater specificity and a narrower scope. Questions to be addressed include:

- How do the system performance areas specified as a near-term priority by NCHS relate to the broader system elements identified?
- What does performance in the NCHS-priority areas mean, and what indicators are proposed to monitor these areas?
- How well do current NCHS data systems support the proposed indicators?

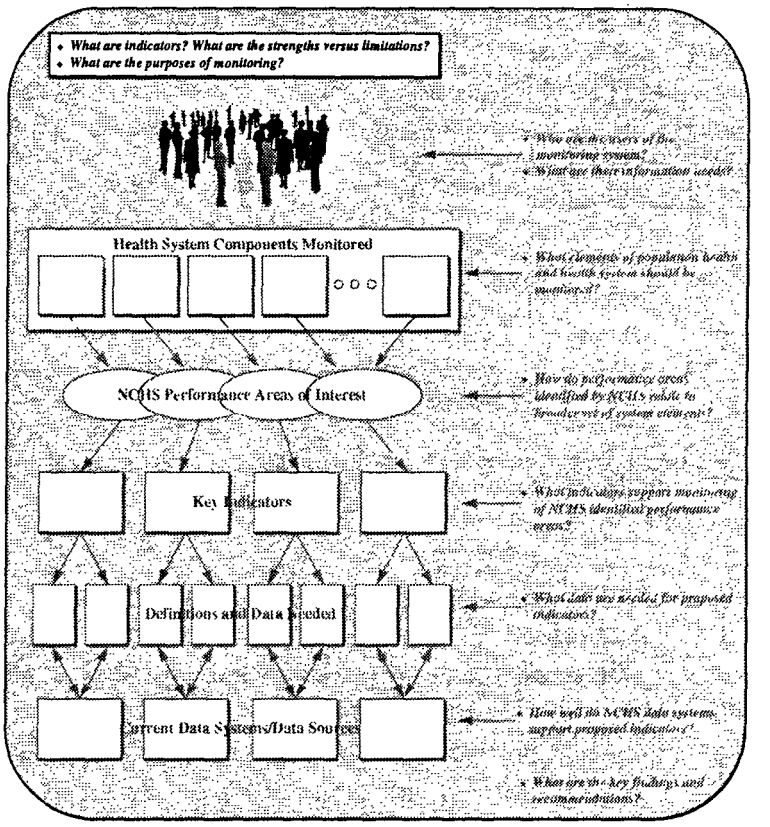
These questions are addressed in the Chapters that follow.

The remainder of this report is organized according to the flow of analysis shown in ***Exhibit*** 1. Chapter 2 discusses the meaning of indicators, the limits of information provided through indicators, and the broad purposes of monitoring that might be addressed. Chapter 3 considers the information monitoring needs of different potential users of the monitoring system. Key elements of health and health care to include in a comprehensive monitoring system are also identified, and related to the performance areas specified by NCHS. Chapter 4 discusses the monitoring of performance in these areas, as we have defined them for the purpose of our analysis, and presents the proposed "short list" of indicators for these areas and later presents an analysis of the proposed indicators, including a discussion of indicator reliability, sensitivity and availability through NCHS data systems. Chapter **5** presents recommendations to NCHS for next steps to be addressed by the KIWG and the Consensus panel process that will follow.

CHAPTER 2:

A CONCEPTUAL FRAMEWORK FOR CLASSIFYING KEY INDICATORS FOR MONITORING REQUIRES A DEFINITION OF INDICATORS AND THE PURPOSES OF MONITORING

One of the stated objectives of this project is the development of a framework for classifying and evaluating key indicators, to identify a set of ideal indicators as well as sets of indicators that can be obtained immediately and practically, whether by NCHS data systems or by other available data sources.



A fundamental question to be addressed in classifying and evaluating indicators is: what is an indicator? Systematic and on-going performance monitoring is of interest at many levels of the health care system and the desirability of indicators to support that is widely recognized. But, exactly what indicators offer to the user is sometimes not as clear. For health plan review, the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) has defined an indicator as a quantitative measure that can be used to monitor and evaluate the quality of important health plan functions that affect patient outcomes.[4] In broader terms, an indicator is defined by JCAHO as a "tool that can be used to assess performance and direct attention to potential performance issues that may require more intense review." The dictionary offers some more specific definitions. "To indicate" means to point out; to show; to give some notion of; to be a mark or token of; to give ground for inferring; or to point to as a suitable treatment.' Each of these variations in the definition has potential use in a monitoring system for health policy support: pointing out problems, explanation of system dynamics; a basis for inferring causes of success or failures and guidance for future directions of policymaking.

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[4] Primer on Indicator Development and Application Measuring Quality in Health Care. Joint Commission on Accreditation of Healthcare Organizations, Oakbrook Terrace, Illinois, 1990.

[5] Chambers Twentieth Century Dictionary, 1972.

There are two underlying ideas in these alternative definitions of an indicator. First, the concept of an indicator implies a ***consistent relationship*** between the measure used as an indicator and the phenomenon of interest. Secondly, the "mark" or "token" quality of an indicator implies that only ***partial information*** about the phenomenon is provided.

These two concepts convey both the strengths and limitations of indicators for policy support. An indicator can only be as good as the continuity and strength of its relationship to the phenomenon of interest. The abbreviated nature of indicators may limit user awareness of changes in the health care system not captured by the indicator but influencing its reliability. In the discussion that follows, the potential limitations of indicators are further discussed.

1. Wide Acceptance of Key Indicators Requires Understanding that a Limited Set of Primary Indicators Cannot Fully Address Information Needs for Health Policy Planning.

One of the desired outcomes of this project is the development of a set of indicators that will be widely accepted. We expect that this goal will be more easily achieved if audiences understand the limits of both breadth and depth of information conveyed through a limited set of indicators.

Use of key indicators to inform decision makers and guide policy both offers advantages and poses limitations. Indicators can be very efficient in informing people about what is going on. They reduce larger sets of data describing often complex factors into essential elements that carry ideally the most important and most reliable information. The reduced form of an indicator can make it more powerful in communicating information. But that format also limits the explanation of context and contributing factors often needed to respond appropriately. This limitation underlines the need for indicators to be linked to a broader data collection, analysis and research effort to ensure accurate interpretation, understanding and insight.

The need to recognize contextual factors and system characteristics is particularly relevant for international comparisons of indicators. International data is available for infant mortality, mortality, morbidity, disability, quality of life, health related behaviors and expenditures. Differences in indicators for different- countries may be influenced by contextual factors other than those directly related to the health care system, such as socioeconomic, environmental, and cultural characteristics, and personal risk behaviors. In addition, differences in the structure of the delivery and finance of the health care system have an impact on the outcomes of the system measured by indicators. Therefore, international comparisons are useful as social indicators, but not as a measure of the success or failure of a country's health care

system.[6] This is another area, however, where research to better understand our own system's performance would allow further comparison with the experience of other nations.

Indicators imply causal relationships between phenomena in the system being monitored. In relatively stable closed systems, the abbreviated nature of indicator information may not pose a problem, because the system as a whole is better understood and the behavior of other. parts of the system can be fairly reliably inferred from the parts being monitored by indicators (e.g., models of the nation's financial and economic systems and indicators of changes in these systems). Regulation of key institutions and other public policies may constrain the types of system components that can develop and the nature of their interactions, lending predictability to the system, if not efficiency.

The technical, financial, social, and legal elements of the health care delivery system, how they interact, and how they are changing over time, are not fully documented nor fully understood. Identifying a limited number of key indicators for monitoring the health care system presents a significant analytic challenge, in addition to the challenge of data collection to support the indicators. The diagnostic and predictive power of initially identified health indicators may be limited by the rapidity of system structural change and the degree of interdependence of components in the health system. Because of the potential obsolescence of earlier/current models of the "system," indicators for the health care system need to be linked tightly to explanations -- provided by a strong and responsive nationally coordinated research capability.

In general, the measures identified in this study as "Primary" (see Chapter 4) are considered to be unambiguous indicators of ***what*** and ***how*** the system is doing, but individually provide little insight into ***why*** the system is performing that way. The primary indicator might be viewed as providing the "headline." Without additional measures to tell the story, such indicators could be misleading rather than insightful. One of the issues to be addressed in individual indicator assessment is the extent to which a potential indicator is limited or potentially distortive. Researchers and policymakers may often need to obtain additional information, including measures of other system factors.

2. Evaluation and Classification of Monitoring Indicators Requires Consideration of the Purposes of Monitoring

The specification of indicators to be included in a national monitoring system depends in part on the purposes of the monitoring to be provided. Three distinct potential uses of a monitoring system have been identified in our analysis:

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[6] U.S. Congress, Office of Technology Assessment, international Health Statistics.. What the Numbers Mean for the United States-Background Paper, OTA-BP-H-116 (Washington, DC: U.S. Government Printing Office, November 1993).

- ***Monitoring System Status***--is expressly intended to pick up on changes in the system, including changes in linkages between key components.
- ***Monitoring for Problems-is*** intended to generate user alerts to failures of the system to perform as desired, or to new opportunities suggesting the need for change in some parts of the system.
- ***Monitoring Program Performance***—represents a system function directed at verifying the achievement of a particular program's stated objectives related to the population's health or the health care system, and specific outcomes anticipated as a result of actions taken.

The **monitoring of system** status would involve tracking descriptive measures of system components, including processes, and linkages between components to detect when the nature or composition of key system components and linkages undergo significant change. In monitoring system status, the user would be able to answer questions such as: What is the "system"? What does it look like now? How is that different from five years ago? This form of monitoring would require a larger set of measures than is envisioned for the key indicator system.

In monitoring for problems, the emphasis on failures rather than good news does not reflect a negative bias but a more sparing use of decision makers' attention through the standard strategy of "exception reporting." Monitoring for problems requires the identification of good diagnostic and predictive measures of performance for different components of the system. This requires linkage of health-related processes to outcomes. It also requires specification of problem-threshold conditions to determine when measures fall outside the bounds of what is acceptable and an alert is warranted. This type of monitoring would answer questions such as: How well is the system doing relative to expectations? Are there any significant problems? Where are they? This form of monitoring is probably the one best addressed by the broad and limited key indicator set envisioned by the KIWG.

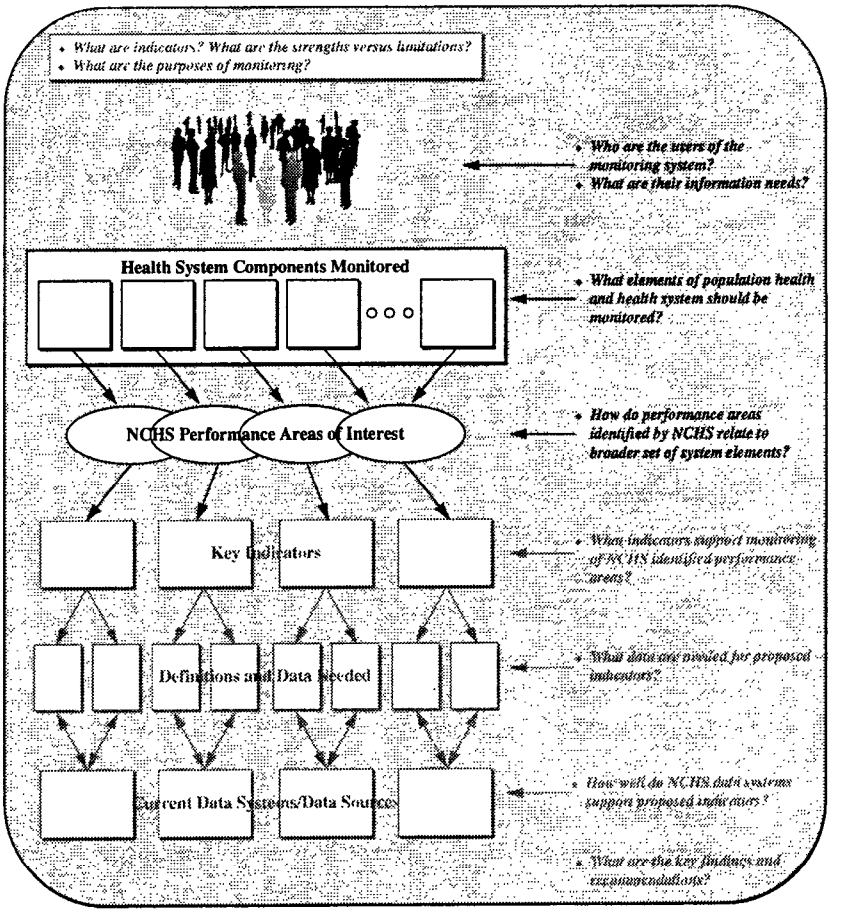
Monitoring of program performance will likely be of increasing interest to particular programs within government agencies, concerned with monitoring their own performance and those of contractors and grantees. It is probably the least applicable to the broader interests addressed by this project effort. This type of monitoring would answer questions such as: How effective has Policy X or Program Y been in achieving the stated goal or intended effect on the targeted outcome and population? The set of measures or performance indicators for this purpose are more detailed, numerous and program-focused. Measures used for this purpose should ultimately be linked to broader monitoring measures.

The types of monitoring that should be provided by the system being designed and developed by NCHS and others will largely depend on the intended users of the system, their level of policy and problem focus, and corresponding information needs. In Chapter 3, we discuss potential users of the monitoring system, and identify important components of the health care system that should be monitored.

CHAPTER 3:

THE FRAME WORK FOR EVALUATING AND CLASSIFYING INDICATORS INCLUDES IDENTIFICATION OF SYSTEM USERS TO BE SUPPORTED AND ELEMENTS OF HEALTH AND HEALTH CARE TO BE MONITORED.

The basic framework for structuring a monitoring system should ideally address application-related issues including identification of intended users, their role in the health care system, and key decisions that the system would support. Following the identification of decisions to support, information needs can be identified, and data sources evaluated.



This section of the report discusses key groups of potential users whose decision making might be supported by the indicator monitoring system. A set of ten basic components of health and health care that would ideally be monitored to provide support are then described. The ten system components are then related to the nine performance areas by NCHS at the start of the project.

1. Key Potential Users of the Monitoring System include Policymakers, the General Public, and Health Policy Researchers, Each with Different Roles but Many Shared Information Needs.

Identification of needed indicators requires distinguishing among the information needs of different potential users of the system. Three important potential user groups considered in this analysis are:

- ***Public Policy Makers***—who are probably the primary target for information support provided by a national monitoring system. Good "intelligence" about the nation's health and health care system are critical to good policy.

- ***Members of the General Public-who*** make both private decisions affecting their own use of the health care system, and who influence public policy that will affect the health care system.
- ***Health and Health Services Researchers-who*** need to identify priority areas for future work to document outcomes and processes and understand causes of system success and failure, and may engage in efforts to verify relationships between system indicators and the more detailed phenomena they represent.

Each of these groups has a different set of key decisions, and corresponding information needs that a national monitoring system might address. Since no single group has been identified as the exclusive focus of monitoring system support, the discussion that follows identifies areas of shared information needs in addition to important ones that are distinctive for each group. Support of shared information needs provides a logical starting point for broader monitoring system development.

a. *Different User Groups Share the Need for Information Alerting the Need for and Guiding Changes in Health Policy*

Exhibit 2 presents a list of some of the key decisions that need to be made by users in each of the three broad groups described above. The initial set of items in each list imply a common area of information needs across the three groups. These decisions generally address users' needs to be alerted to problems in the system, measured either in terms of poor health outcomes across the population, or disparities and inefficiencies within the health care system. To effectively address these problems with changes in policy, there is a corresponding need to understand aspects of the health care system structure and dynamics related to the problems.

Common areas of need across user groups support decisions to determine one's position on health policy issues, or change the focus of public attention on health-related problems. There is a common need to inform others whose support is needed to address problems. Information is needed by policymakers to identify what policies would be most effective. Similar information would provide voters with a basis for opinions, expressed in polls or other public forums concerning good policy. Researchers' findings in identified problem areas should help guide policy decisions. Researchers also need information about health-related processes and outcomes to evaluate the effectiveness of implemented programs intended to produce changes.

b. *User Groups Have Different Information Needs to Support Activities Related to their Distinct Roles in the Health Care System.*

Differences in information needs across the three groups generally relate to differences in the activities associated with the roles each play in the system. Policy makers determine policies and thus need information to trigger and direct policy interventions including changes in laws and regulations affecting health providers, payments, health care delivery and use of technology.

EXHIBIT 2

DECISIONS BY KEY POTENTIAL USERS

POLICY MAKERS	GENERAL PUBLIC	HEALTH RESEARCHERS
♦ Determine a position on health policy issues in light of new information.	♦ Determine a position on health issues in light of new information	♦ Pursue new research in areas where new problems are identified.
♦ Inform others of changes in the environment and health system that warrant closer attention or change in policy.	♦ Inform others in the community of problems, concerns and the need (if any) for change.	♦ Identify areas where significant inequities are indicated, for research into causes and possible solutions.
♦ Persuade constituents or "clients" of the need for change .	♦ Vote for candidates based on their position regarding health care policy direction and level of public financial support.	♦ Identify areas for research on system inefficiencies, to explore causes and strategies for reducing inefficiency.
♦ Determine priorities or foci of agency activities.	♦ Express opinions to polling organizations (and other media organizations) regarding health care policy direction and level of public financial support.	♦ Examine linkages between problems addressed within a particular subpopulation, across the health care system.
♦ Identify what policy measures might be needed.	♦ Change patterns of behavior affecting personal (and family's) health risk.	♦ Assess the impact of policy changes, such as reimbursement mechanisms and regulation.
♦ Review/modify regulations affecting private industry policies and activities affecting delivery and cost of health care.	♦ Change patterns of use of health care services (including change in providers and places of care).	♦ Follow indicators over a sustained period of time and statistically test accuracy and reliability using system variables that indicator is purported to be a "leading", "lagging" or "coincident" measure of.
♦ Review/Modify regulation of health professions (including reporting requirements).		♦ Follow indicators over time to test effectiveness of public or private programs purported to change health outcomes or health related factors linked to outcomes.
♦ Review/Modify level of funding for a particular health-related department, agency or program.		
♦ Determine authorization for a particular agency program.		

Policy makers may need information specific to decisions about the continued authorization of programs, program priorities and level of funding that maximizes the return on public investment.

The general public has a need for information to help inform individual decisions and behavior affecting personal health risk and use of personal health care services. Information to foster disease and injury prevention, or to enable more effective and efficient use of the health care system has value at the individual level, and could translate into significant changes in health and health care utilization in the aggregate if effectively communicated to the general public.

Information needs specific to the research community address scientific and methodological issues including the testing of relationships between alternative indicators and indicator definitions, and the outcomes of interest. This area of research information need, and the more applied research questions described above, imply the need for good longitudinal data describing population health and health care.

The information needs of each of these groups imply a need for both an understanding of the health systems factors driving performance, and of measures of their performance. This combination provides an awareness of decision points and insight about choices. The question to be addressed next is: What system elements should be monitored?

2. Ten Basic Components Have Been Identified for Comprehensive Monitoring of Health and Health Care

A framework that identifies a relatively robust set of criteria for classifying and evaluating key monitoring indicators should both address the performance areas of interest to targeted users, and elements of the system that are essential to measurement of health and health care, regardless of future changes in factors such as markets, technology or health policy. In this section of the report, we describe ten basic components of the health care system that we have identified for monitoring.

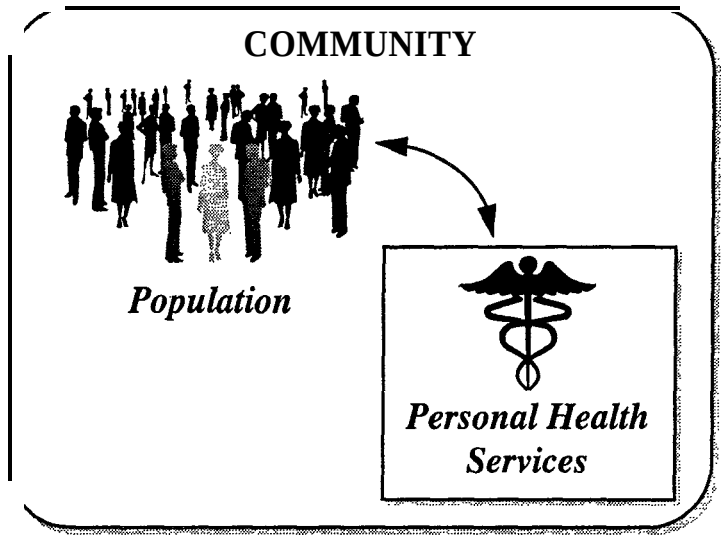
The set of ten health system components to track health and health care includes the population whose health status is the ultimate measure of system performance, the system of personal health care services delivered, the public health services system, external environment factors, and medical research and technology, affecting health and patterns of health services utilization. The system components specifically identified by our analysis are:

- ***Population-referring*** to the entire U.S. population, persons in a particular public program or private insurance program, or specific segments of the population such as adolescent mothers. The demographic characteristics and health status of the population influence the need of and demand for services provided by the health services system.

- ***Public Health*** Services-involving assurance of public health and safety, including food and water quality monitoring, infectious disease prevention and control, delivery of prevention services, and public health education to reduce population-based and community-based health risks.
- ***Personal Health Service*** Utilization-measured in terms of the number and type of clinical procedures performed for patients with a given diagnosis, type of provider, source of payment and set of demographic characteristics.
- ***Health System Finance—***determining how personal health care services, research and construction, broader public health activities, and workforce requirements are paid for and by whom. Alternative systems of finance and provider reimbursement create differing incentives for both the utilization and provision of health care.
- ***Health Care Work*** Force-comprised of persons providing health care services and conducting health research. The workforce includes physicians, nurses, physician assistants, nurse practitioners, certified nurse midwives, dental and allied health professionals.
- ***Care Facilities/Service Settings—***describing the physical locations where health care services are provided, such as acute care hospitals, urgent care centers, ambulatory surgical centers, physician offices, skilled nursing facilities, outpatient clinics, hospices, and at home with home health care.
- ***Medical Research and*** Technology-referring to scientific and technological advances in the field of medicine, providing greater understanding and capacity to diagnose and treat specific diseases or medical conditions.
- ***Physical/Natural Environment-***influencing the health status of the population. Exposure to physical, chemical or biological hazards that pose a risk of injury, infectious disease, or increased risk of cancer or chronic disease, are a function of the physical environment.
- ***Economic Environment-referring*** to economic factors associated with significant differences in health risk including employment status, real income levels, and access to care, affected by availability of health insurance coverage, through employment and employer benefit policies.
- ***Policy/Regulatory Environment-***shaping the structure of the health care system. The policy environment primarily influences the health system through its control of public programs and funding. The regulatory environment affects the system in terms of insurance products that can be offered, pharmaceuticals and medical devices approved for use, and the scope of permitted practice of different types of providers.

As shown in ***Exhibit*** 3, monitoring health and the health care system requires community and population-based measures in addition to measures of plan and provider performance and other elements that focus on the personal health care delivery system, which functions within a

EXHIBIT 3



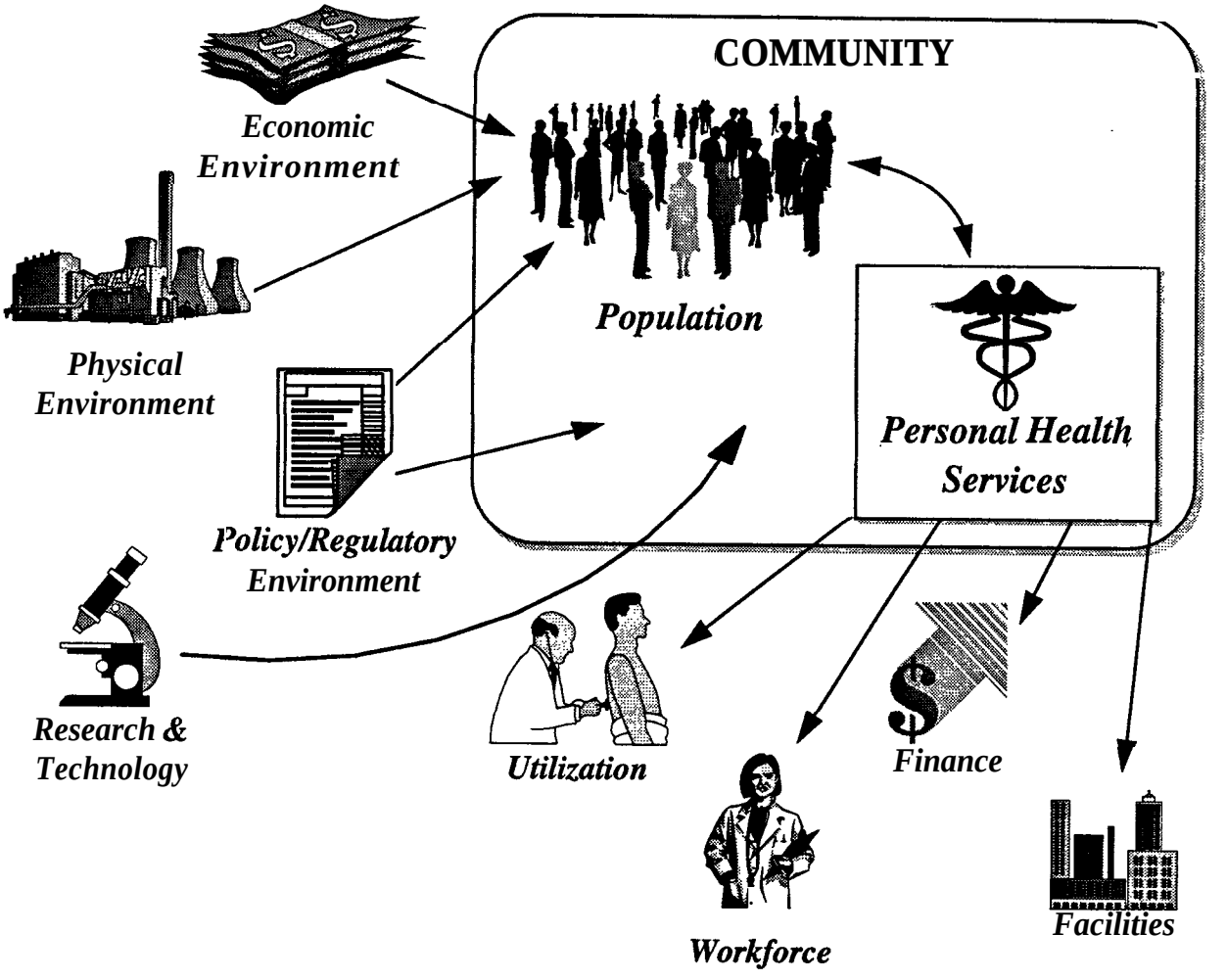
community. ***Population*** health status is affected by a number of factors besides access to health care and the outcomes associated with care. Individuals' age, genetic risk factors, and behavioral risk factors will influence health status and the need for services. To effectively target public policy, it is important that a monitoring system be capable of reporting indicators of health status by key population subgroups with particular vulnerability to disease and disability, or inadequate access to appropriate care.

If improving and maintaining the nation's health is the ultimate goal of health policy, a monitoring system to support policy-making should include other "systems" that influence population health. This includes the ***physical and natural environment*** and ***economic conditions*** in the community, as shown in ***Exhibit*** 4. Air, water and food safety, and exposure to other hazards posing risk of injury and infectious disease are a function of the physical environment confronting individuals in the community, over which they may have little control. Economic conditions affecting individuals' income and employment status, and often insurance status, will ultimately affect the health of individuals and their households.

The ***policy environment*** affecting the availability of social support programs can affect individuals' need for and access to health care services. Changes in health policy through the enactment of new ***regulatory measures,*** changes in program funding and level of regulatory enforcement can influence virtually every element of the health care delivery system, including ***health services utilization, finance,*** the ***health care work force*** and ***the facilities and settings*** in which services are offered.

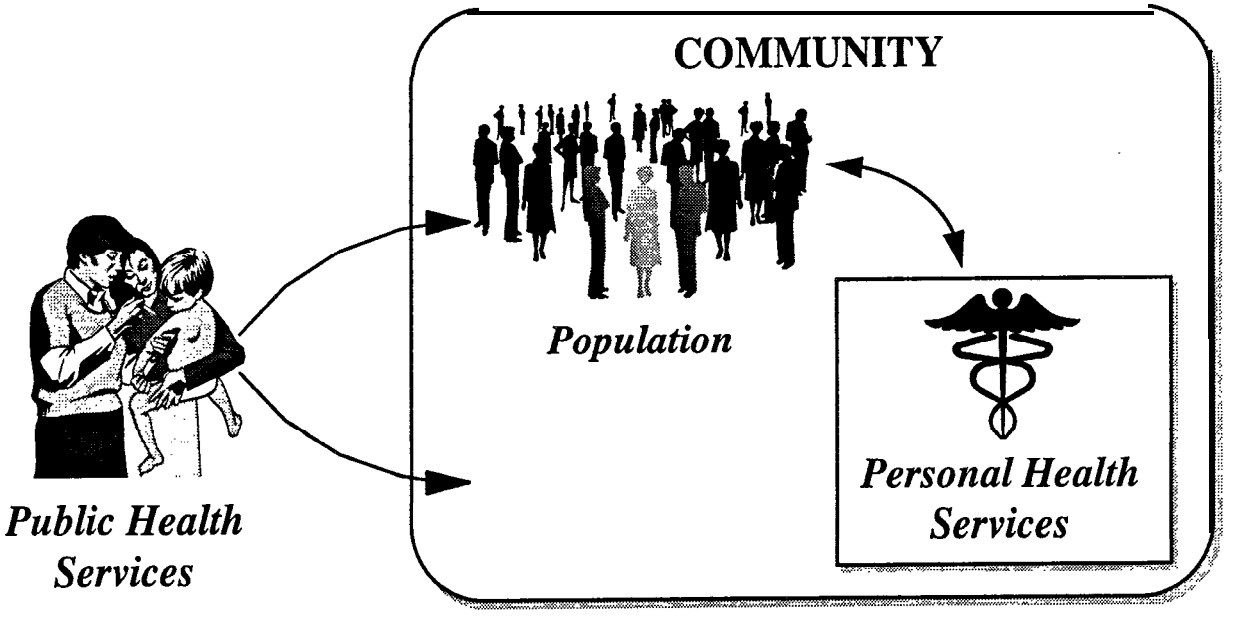
New developments in medical ***research and technology*** can improve the effectiveness and efficiency of both public and private health services. The net effect of such changes should be an improvement of the health status of the affected subpopulation, and changes in the delivery or utilization of health care services.

EXHIBIT 4



Referring to ***Exhibit*** 5, the provision of ***public health services*** can significantly affect population health risks, resulting from conditions in the surrounding physical environment, including prevalence of preventable infectious disease, and the behavior of members of the population. Reducing these risks can directly affect both population health status and the need for and utilization of personal health care services.

EXHIBIT 5



Each of the three user groups described above would likely be interested in having the capacity for understanding both current system status and being alerted to problems related to three basic elements. ***Exhibit*** 6 provides examples of basic questions that policymakers, the general public and health care researchers would all be likely to ask.

A review of this list of questions demonstrates the close relationship between measures for a given system component across monitoring functions. For personal health services utilization, for example, system status would be indicated by the distribution of services currently provided, by type of patient, provider and payer. Problem-alerting indicators in this area would compare that distribution to some specified desired distribution to determine whether the range of acceptable utilization patterns had been exceeded.

Thus similar indicators will be applicable across monitoring functions, but indicator definitions and implied data requirements to support different functions will vary. Current NCHS national data systems are best suited for the broader-based monitoring involved in monitoring system status and alerts.

3. NCHS-Specified Areas for Monitoring Address Key Characteristics of Population and Components Most Associated with Personal Health Care Services.

This section of the report describes the relationship between these system components and the nine performance areas specified by NCHS. Continued tracking of system components

EXHIBIT 6

Health System Component	System Status	System Alerts
Population	How healthy are people? What are people doing that can affect their health?	What adverse health outcomes are we seeing?
Public Health Services	What public health services are being provided? Where? How reliably?	What adverse and what positive outcomes are occurring with that level of service?
Personal Health Service Utilization	What services are being used? What service volume? What diagnoses?	What services are being over-used? Under-used? By whom?
System Finance	Who is paying for the care provided? What services are/are not being paid for?	Are adverse outcomes resulting from too little/too much coverage? Is health care costing too much?
Health Care Work Force	Who is providing the services? Does work force capacity correspond to service needs?	Are adverse outcomes resulting from current staff workload; staff level (lack) of training; staff supervision?
Facilities/Service Settings	Where are services being provided? Does facility capacity correspond to use pattern?	Are adverse outcomes associated with facility diversity; under-capacity; over-capacity?
Research and Technology	What is the current focus and level of research activity? What is the rate of adoption of new medical technology?	What adverse outcomes are associated with misuse of new medical technology?
Physical/Natural Environment	What level of health risk do chemical and biological contaminants currently pose?	What adverse health outcomes have resulted?
Economic Environment	What current economic conditions can affect health and use of health care?	What adverse health outcomes associated with economic conditions and other factors changing use of health care services?
Political & Regulatory System	What parts of the health care system are currently subject to regulation? What changes in legislation and program funding have occurred that can affect health and use of health care?	What adverse or positive outcomes have resulted from changes in the law, level of public funding, level of regulation and enforcement?

provides a context for better interpreting changes in performance reflected in the key indicators. In that way, key health indicators are analogous to key economic indicators, such as the rate of unemployment, whose interpretation requires information describing related economic system components such as average wage rates, affected industrial sectors and firm size.

Exhibit 7 shows the relationship between the nine monitoring areas specified by NCHS and the ten basic system components identified for the broader monitoring framework. The priority areas identified by NCHS potentially involve most of the ten identified components of the system, as indicated by the light shading in ***Exhibit*** 7. Much of the recent policy discussion involving health reform, however, focused on measures of personal health services and, to a lesser extent, population health status. The proposed primary indicators identified to support monitoring in the NCHS-specified performance areas also focus primarily on measures of health status and personal health services.

The short-term focus of monitoring on areas most directly tied to personal health care delivery and the terms of the health care debate is useful in limiting the scope of effort and focusing near-term monitoring system implementation. In Chapter 4, the performance areas identified by NCHS are described further, and proposed primary indicators for each area are presented.[7]

[7] As discussed earlier in Chapter 3, the system components included in our framework but not addressed within the scope of this analysis can have a significant impact on health status, service utilization, and expenditures as well as other key performance areas. Consideration of these additional system components and next steps for indicator development and evaluation in these areas can be addressed within later KIWG and DHHS Advisory Group processes.

EXHIBIT 7

RELATIONSHIP BETWEEN SYSTEM COMPONENTS AND MONITORED CHARACTERISTICS

Performance Areas to Monitor	Components Involved: Population	Public Health Services	Personal Health Services	System Finance	Health Care Workforce	Facilities/ Settings	Research & Technology	Physical Environment	Economic Environment	Policy/ Regulatory Environment
Health Status	■	▒	▒					▒	▒	
Public Perceptions	■		▒							
Access to Care			■			▒			▒	▒
Services Utilization		▒	■	▒	▒	▒				▒
Health Insurance			▒	■		▒				▒
Health Spending	I	I	▒	■	▒	▒	▒			▒
Quality Outcomes	■		■		▒		▒			
Consumer Satisfaction	I	I	■	▒	▒					
Provider Behavior	I		▒		▒					

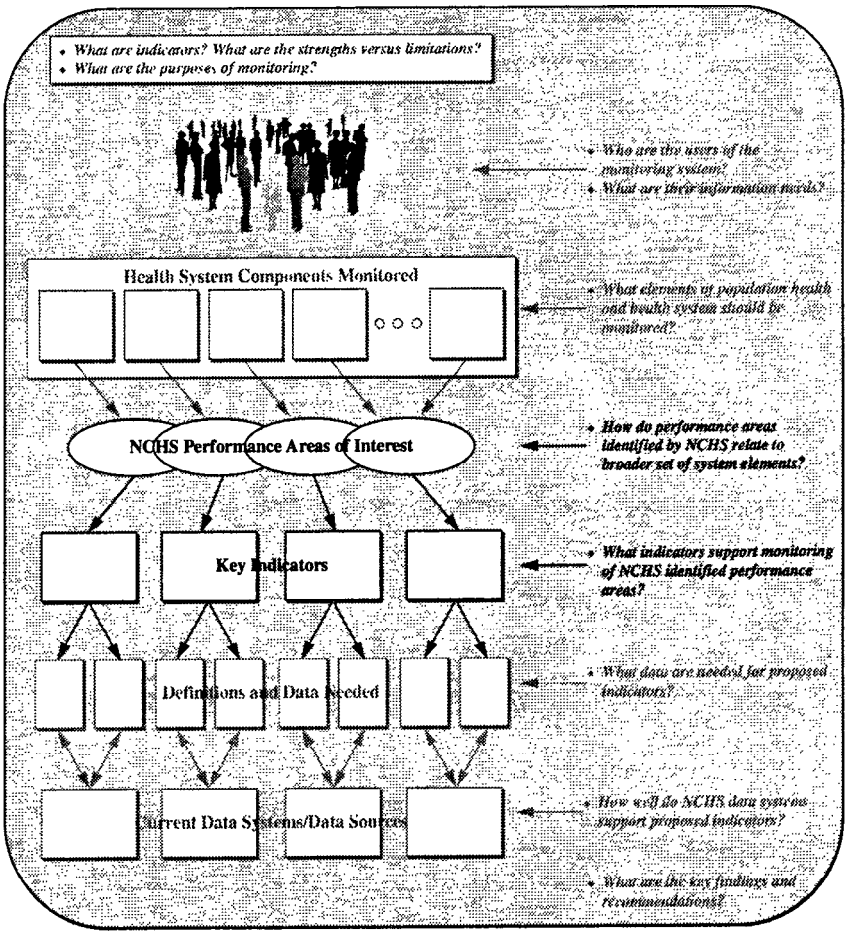
■ Primary Focus of NCHS Project ▒ Other Contributing Factors

CHAPTER 4:

LEWIN-VHI ANALYSIS OF SELECTED INDICATORS WITHIN NCHS IDENTIFIED PERFORMANCE AREAS

A. LEWIN-VHI DETAILED ANALYSIS FOCUSES ON NCHS-SPECIFIED MONITORING AREAS AND INDICATORS OF POPULATION HEALTH AND CARE ASSOCIATED WITH PERSONAL HEALTH SERVICES.

At an early stage in the project NCHS identified several performance areas of primary interest for indicator development and monitoring. Much of the widely publicized debate surrounding national health reform involved issues in these areas. This focus reflects the importance of these factors in evaluating the need for and success of health care reform. In the discussion that follows we provide an overview of each performance area, including the general definition applied to each, and the rationale for its inclusion as a primary area for monitoring. This discussion is followed by presentation of the list of primary indicators identified for monitoring in these areas.



The performance areas discussed are: Health Status; Public Perception; Access to Care, Utilization of Services; Quality and Outcomes of Care; Consumer Satisfaction; Health Insurance; Health Expenditures; and Provider Behavior and Attitudes. As noted in earlier discussions, most of these performance areas are interdependent. Although we have assigned indicators specific to one of these areas, for purposes of presentation, the indicators discussed are often relevant to other areas as well.

1. Monitoring the Nation's Health Status

Monitoring health status is perhaps the single most important part of national health and health system performance monitoring. Measures of health status can apply either to the entire population or subgroups based on geographic regions, racial and ethnic subgroups, gender and age groups and other special characteristics that correspond to special health concerns.

Measures of health status provide a "bottom line" indication of the need for and effect of policy changes, and a context for changes in other areas, such as access and quality of care. Tracking health status in parallel with health care utilization and cost (with disaggregation by subpopulation) would provide a useful pairing of outputs to track changes in resource allocation with gross measures of impact on population health status. Such tracking could highlight differences in levels of health between subpopulations that may indicate inadequacies in access to services, or a need for greater public health education. To understand why changes in service utilization and other resource use are associated with particular changes in population health status, an indicator-linked research capability is needed.

This area of monitoring applies to both the system status questions and the problem identification function. Since affecting health status is the ultimate goal of the health care system, measures in this area also indicate ultimate system performance. Health status is influenced by factors both within the personal health care system (e.g., timely delivery of needed services) and outside it (e.g., water quality), so direct measures of health status can capture changes in both. Thus, health status is listed as a characteristic of population and a measure of the effectiveness of public health services in reducing avoidable community-based health risks. As shown in ***Exhibit*** 8, health status indicators would include measures of health risk behaviors, mortality rates, direct health status measures such as years of healthy life, and disability rates.

2. Public Perception of the Health Care System

Public Perception of the health care system reflects the general public's satisfaction with the health care system as a whole, and not one service provider or financing mechanism in particular. It is likely however, that individuals' judgments of the system will be influenced by their own experiences. In addition to reflecting the public's satisfaction, measures in this area are indicative of how the public will vote on health care issues, i.e. what policies they will support and what sorts of policies they would like to see developed.

Tracking public perceptions of the health care system can provide very helpful information to policymakers. Members of the Executive and Legislative branches of the government need to understand what voters want, and how to craft proposals to address those needs and interests. In defining measures of "public" perception, the population whose opinions

EXHIBIT 8

PROPOSED PRIMARY INDICATORS IN AREAS TO BE MONITORED

Performance Areas to be Monitored	Components Readily Measured		
	Population	**Personal Health Services**	**System Finance**
Health Status	♦ Years of Healthy Life ♦ Premature Chronic Disease mortality ♦ Percentage of population who are smokers ♦ Percentage of population who are obese ♦ Percentage of population with excessive alcohol consumption ♦ Percentage of population reporting regular seat belt use ♦ Perinatal mortality ● Infant mortality ♦ Low birth weight ♦ Mortality rates by age group, by cause ♦ Disability rate use composite index		
Public Perception	♦ Consumer confidence that if they or a member of their family became ill, they would receive appropriate care ♦ Percentage of population who feel that US is spending too much on health care		
Access	♦ Percentage of population with regular source of primary care	♦ Mix of available health professionals relative to a "best practice" standard ♦ Adult screening rate for cancer, diabetes, hypertension (relative to age/sex appropriate target)	♦ Distribution of population by primary source of coverage

EXHIBIT 8 (CONTINUED)

PROPOSED PRIMARY INDICATORS IN AREAS TO BE MONITORED

Performance Areas to be Monitored	Components Readily Measured		
	Population	**Personal Health Services**	**System Finance**
Utilization		• Utilization of primary services (relative to target levels) • Utilization of preventive services (relative to target levels) ♦ Rate of "avoidable" hospitalizations ♦ Percent of Emergency Room visits for non urgent reasons	
Quality Outcomes	♦ Perinatal mortality ♦ Infant mortality ♦ Mortality rates by age group, by cause	♦ Rate of pharmaceutical and other technological innovation ♦ Hospital patient mortality rate by age group	
Consumer Satisfaction	♦ Percentage of population willing to recommend their current health plan to friends and family ♦ Percentage of population more satisfied with current plan than those available in past		
Insurance	♦ Percentage of population with health insurance coverage		♦ Extent of covered services relative to set standard ♦ Newly enrolled in Medicaid
Health Spending	♦ Out-of-pocket spending as a percentage of disposable income-acute care ♦ Out-of-pocket spending as a percentage of disposable income-long term care ♦ Percentage of Americans who had problems paying medical bills last year		♦ National health spending as a percentage of GDP

will be sampled must be representative of the general public, the data must be collected in a very timely fashion since public opinions can change quite dramatically in relatively short periods of time. The definition of the "system" presented to the interviewee should be multidimensional to minimize biases in response. Finally, surveys to gauge public perceptions should be replicated to assure that opinions sampled are representative. Referring to ***Exhibit*** 8, key indicators of public perception include assessments of public confidence in the quality and access to appropriate care, and assessment of whether too much money is spent on health care.

3. Monitoring Access to Health Care Services

To understand the level and pattern of utilization of personal health services among different subpopulations it is critical to monitor their access to services. According to the Institute of Medicine, access to care refers to the timely use of personal services to achieve the best possible health outcomes. Lack of access means fewer people use fewer health services and have worse outcomes. According to a study of access to care by the Robert Wood Johnson foundation,[8] lack of access can result from economic barriers, supply and distributional barriers, and sociocultural barriers. In this analysis, access to services refers to the availability and acceptability of care for a given subpopulation.

Policy makers clearly need to account for population access to care when examining the impact of health care reform policies, particularly if those policies are aimed primarily at economic barriers to care. Limited access to appropriate services may also explain what would otherwise be viewed as inappropriate utilization of the range of potentially available services. For example, higher rates of inpatient hospital services may result from a lack of alternatives in less acute and less costly settings. Direct measures of access would include measures of usual source of care. Indirect measures would include rates of avoidable hospitalizations, selected mortality rates, low birth weight and immunization rates. Some of these indicators also apply to utilization of services, which is linked to access to care.

4. Monitoring Utilization of Services

The utilization of services is the most basic characteristic of personal health services to be monitored. Utilization can be generally defined in terms of the frequency and duration of contact with the personal health services system, and is typically measured in units such as days of care, number of clinical procedures, and units of prescribed medication used to treat a diagnosed condition. Utilization is generally distinguished in terms of typical insurance claim information, including type of care provider, the care setting, purpose of the visit (diagnosis), the frequency and duration of care, and basic demographic characteristics of the patient.

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[8] See Appendix C for a complete bibliography.

Tracking changes in utilization will address questions about what the personal health services system is providing to whom, and shifts in patterns of services and care settings over time, as a result of changes in public policy or private market forces. Comparison of actual utilization patterns to desired levels, based on a defined model of appropriate care utilization, would enable a monitoring system to alert system users to problems (e.g., inefficiencies or inequities) in the care delivery system for particular types of care, or particular subpopulations. As shown in ***Exhibit*** 8, key indicators for this area include process measures of service utilization relative to expected patterns of appropriate use and outcome measures indicating (in)efficient delivery of care, such as avoidable hospitalizations.

5. Monitoring Quality and Outcomes of Care

Another important characteristic of the personal health services delivery system is its performance in terms of the quality and outcomes of care. Indeed, as health systems engage in continued cost-cutting to remain cost-competitive in aggressive "managed care" markets, close monitoring of quality becomes critical. Since patient satisfaction, an important dimension of quality, is being treated here as a monitoring area in its own right, quality and outcomes of care therefore, focus on key inputs, processes and outcomes of the care being provided.

Key inputs to care include adequate numbers of appropriately trained and experienced staff, use of the drugs and devises recommended for treatment, and well-maintained facilities and equipment. Process components indicative of quality include consistent use of up-to-date clinical guidelines, ***timely*** administration of drugs and procedures, adequate and consistent supervision of staff and regular internal case review.

Outcomes of care indicating quality include infection rates, re-admission rates, mortality and disability rates, recovery rates and average length of stay. Outcomes generally need to be risk-adjusted to reflect expected rates given the age other demographic and pre-existing health status of patients.

At a national and state level, quality and outcomes represent an important area for monitoring to assure that the public generally does not experience increased health risk as a result of the rapid changes occurring in the health care system, and to identify and address areas where problems may exist. Monitoring quality using the same indicators across states pursuing different approaches to health care reform would facilitate comparison of the impact of public policies and private initiatives, for a better understanding of "what works." The short list of quality indicators in this analysis includes infant and adult mortality rates by age and by cause, the introduction of new technology, and mortality rates by provider type.

6. Monitoring Consumer Satisfaction

Consumer satisfaction provides a subjective, but easily obtained measure of quality. Consumer satisfaction is based on an individual's cognitive evaluation and emotional reaction to structure (such as access, convenience, and financing), process (such as the provider's interpersonal manner), and outcomes of health services received through a particular plan or provider. In gathering consumer satisfaction information, it is very important to have specific areas to be examined that are not easily manipulated in terms of reporting, and some degree of standardization to permit comparisons.

Gaining the trust and satisfaction of consumers is a prerequisite for providing quality care and achieving health care goals. This is because the consumer's satisfaction influences his or her decision to follow prescribed treatments and to seek professional health care in the future. Consumer satisfaction measures permit comparisons as broad as across countries and as narrow as within hospital departments.

7. Monitoring Health Insurance

The primary means of payment for health care services is through third party payments available through health insurance coverage. Health insurance can be provided through the government, an employer, or purchased directly by the beneficiary from an insurance company. Health insurance varies by the services covered and cost-sharing requirements. To adequately understand the level of coverage held by the population, not only the existence of coverage needs to be measured, but the level of coverage.

The lack of health insurance coverage among forty million Americans was one of the central themes in the health reform debate last year. Tracking health insurance receipt and the level of coverage are key components to understanding the incentives faced by consumers in obtaining health care services. Those without health insurance are less likely to use health care services. When the uninsured do use services the costs are often shifted to those who do have health insurance in the form of higher charges. Types of health insurance coverage or reimbursement systems also influence the nature of the delivery system as well as the use of health care services. As shown in ***Exhibit*** 8, indicators included in the primary set are the percentage of population with insurance coverage, extent of coverage available, and change in population covered by Medicaid.

8. Health Expenditures

Health expenditures refer to the amount of money spent on medical care over a period of time. Health expenditures can be broken down into types of services, costs of diseases or other conditions, by provider types, sources of payment, etc. Expenditures expressed as a percentage of

Gross Domestic Product (GDP) provide a measure of the relative level of resources devoted to health over time.

Increasing health expenditures have been identified as a major concern for government and businesses. Tracking health expenditures can provide a means of determining how resources and the burden of paying for the care are allocated. Health expenditures in combination with measures of health status and utilization could be used to assess whether costs are in alignment with process and outcomes of the system. As shown in ***Exhibit*** 8, proposed primary measures of National health spending include the population's out-of-pocket spending for care, and National health spending as a percentage of GDP.

9. Provider Behavior and Attitudes

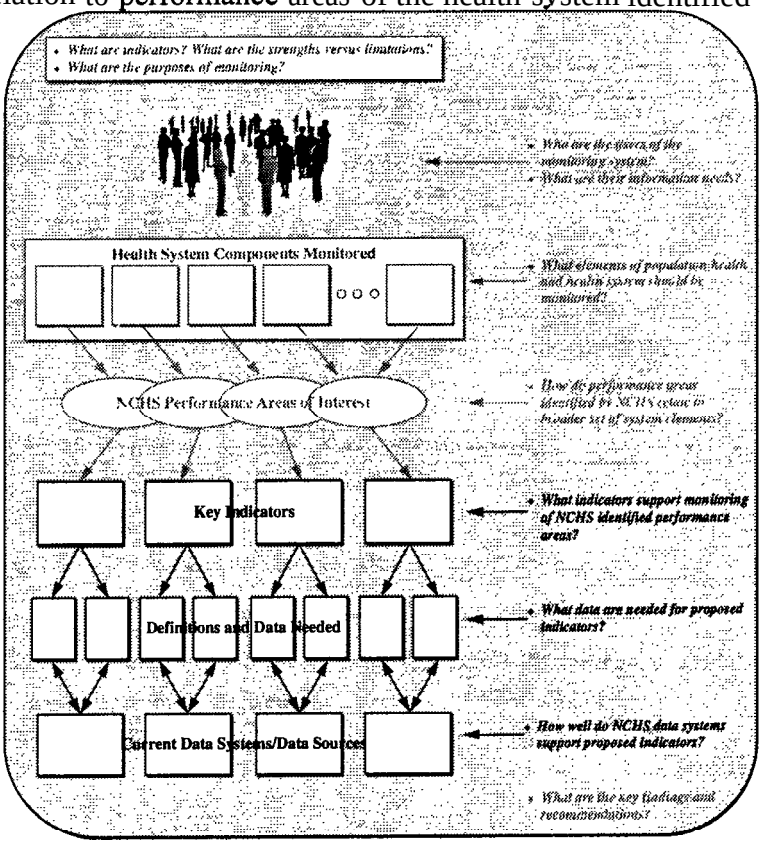
Provider behavior and attitudes in response to the health care system and their own personal circumstances, can influence both the effectiveness of policy interventions and the quality of care provided. Measures of provider behavior could include the number of lab tests ordered or the number of office visits for an episode of care. These types of measure overlap considerably with process-oriented measures of quality of care and service utilization, but could be focused on specific individual or groups of providers. Measures of provider behavior require established benchmarks against which to judge actions. They also require objective means for obtaining measure of behavior, including not providing services. Measures of provider attitudes can supplement process-oriented measure by indicating how satisfied providers are with the care they are providing and the environment in which they operate.

Measures of provider behavior and attitudes can serve as indicators of quality of care in the absence of (or in addition to) reliable outcomes data. A systematic measurement of the opinions of those who deliver care and have the greatest technical expertise would provide policymakers and network administrators with valuable information about how providers respond to different aspects of the health care system. This area of monitoring has not been addressed directly in our analysis. It has been identified by NCHS as an area for future work. However, a number of the proposed key indicators of access and quality would have relevance to provider behavior and attitude.

Although indicators listed in ***Exhibit*** 8 are presented according to the performance area for which they provide most support, most of the primary indicators identified in our analysis had relevance to more than one of the areas of interest. In Appendix A each of the indicators on the primary list is considered in application to each of the other relevant areas. In this chapter an overview of each indicator is provided, and the discussion focuses on the primary monitoring area for which the indicator is proposed.

B. EVALUATION OF THE PRIMARY INDICATORS FOR IDENTIFIED MONITORING AREAS INCLUDES ASSESSMENT OF INDICATOR QUALITY AND DATA AVAILABILITY.

This section of the report provides an overview of our evaluation of the primary indicators delineated in ***Exhibit*** 8 in relation to performance areas of the health system identified by NCHS. These areas are: Health Status, Public Perception, Access to Care, Services Utilization, Quality and Outcomes of Care, Consumer Satisfaction, Health Insurance, and Health Expenditures. The analysis is presented in terms of narrative abstracts of the key evaluation findings and limitations of the primary indicators, and summary tables of the evaluation of indicators for each performance area.



In the discussion that follows, we present the criteria used to assess the proposed key indicators. This is followed by eight sections corresponding to the performance areas we analyzed. Each of these sections contains the analysis and summary table for the related primary indicators.

1. Evaluation Criteria for Indicators Focus on the Nature of the Data that would be used, the Relationship of the Indicator to the Area of Measurement, Indicator Credibility and Data Availability

The original scope of work for this project called for evaluating indicators in the specified performance areas for the following:

- The availability of the indicators from NCHS data systems;
- The observed variability of the measure over time;
- The extent to which the measure may change in response to health system changes; and
- The degree to which the proposed indicator and data elements have been tested, validated, accepted, and found to be interpretable in current or past surveys.

Based on these initial criteria and the shift in focus of the project toward broader monitoring than health reform, we developed a specific set of factors that define our approach to evaluation of the primary indicators. This analytic approach seeks to assess whether each of the indicators meets the requirements of NCHS in measuring health system and health status changes. For each indicator we examined:

- ***The nature of the indicator—***addressing whether the data collected for the indicator is considered objective or subjective.
- ***Relationship of the indicator to the primary area of measurement-to*** address whether the relationship between the indicator and the area of performance is direct or indirect, and whether the indicator is an input into, a result of, or correlated with changes in the area of performance. This evaluation also. considers whether changes in the indicator are likely to reflect changes in the area of performance in the short term (e.g., within an annual data collection cycle), or whether a longer time frame is needed to observe changes.
- ***The credibility of the indicator-to*** assess what the indicator measures and whether there is demonstrated variability in the indicator in response to changes in the health care system. This dimension of evaluation includes whether the indicator captures primary changes in or secondary effects on the area of performance.
- ***The availability of the*** indicator-to address whether NCHS data systems currently provide or could readily collect data for the indicator and if not, whether the data is available from non-NCHS sources. This criteria is important in the pragmatic use of indicators and the need for ***timely*** access to information when making policy decision.

The nature of the data for the indicator is designated as either ***subjective*** or ***objective.*** Indicators have been designated as objective where data elements can be observed or measured with an interval or ordinal scale. Those categorized as subjective have data elements that contain a substantial judgmental component, that may change over time and thus may be less replicable (e.g., opinions on satisfaction with the health system).

Some indicators provide a measurement that is relative to a benchmark or defined in metrics that can shift over time. For example, the accepted standards for conditions such as obesity and disability may vary due to technological innovation or changes in societal norms. For the purposes of the analysis presented in the summary tables, it is assumed that indicator definitions ***would not*** change over time. However, an asterisk (*) has been used to flag indicators for which definitions might shift over time.

2. **The Relationship Between Indicator and Performance Area Was Examined in Several Ways.**

The relationship of the indicator to the primary area of measurement was assessed through three categories:

- ***Direct or indirect*** is used to determine whether or not the indicator is a true proxy for the primary area it measures or is less closely correlated. For example, a direct indicator for health status would be disability level. An indirect indicator would be risky behaviors, such as smoking, obesity, and seat belt use.
- The classification of an indicator as ***a contributor to, consequence of, or correlated with*** the area of performance measured designates whether changes in the indicators lead to, result from, or are associated with changes registered in the primary area of measurement. It should be noted that indicators that are described as correlated with the area are considered not to have a direct functional relationship to the indicator, but are indirectly related to movements in the area of performance considered.
- ***Short term*** versus ***long term*** refers to the length of time between change in the indicator and change in the area of performance. Short term refers to changes expected be reflected within a period of one year or less.

The credibility of the indicator as a measurement of the primary area is assessed for the three categories described below with a response scale of ***high, moderate,*** or *low* and a designation of whether or not testing has been conducted for the indicator's ability to register changes in the primary area of measurement. For each category, a. moderate rating has been assigned where variability in subpopulations considered may cause differences in the quality of the indicator as a measurement of the primary performance area. Thus, moderate indicators might be strong measures for certain populations but weaker measures for other subgroups. The three categories described below are used to measure credibility.

- The ***validity*** of the indicator refers to the capability of the measure's data elements to accurately register changes in the primary area of measurement (e.g., minimal problems with response bias, data entry errors, vague questions on survey, etc.). The basic question posed is whether the indicator actually measures what it purports to measure. In our analysis, the indicators proposed have often been applied to measure something other than the performance area of interest here. Our assessment of validity therefore, refers to ***face validity.***
- The ***sensitivity*** of the indicator refers to the consistency and responsiveness of the data element or measure in registering changes in the primary area of measurement. That is, a change in the primary area would cause a similar change in the indicator.
- The *sufficiency* of the indicator refers to its ability to capture the most relevant and meaningful factors that are required to tell a complete "story" about the relationship of the primary area to the "system." Is the indicator a primary driving force for changes in the area of performance or is it one of a number of factors affecting performance in this area?

Testing refers to an overall evaluation across all three categories, of the indicators' credibility as a measurement of the primary area. Indicators whose data elements are not distinct from the area being measured were not considered applicable for evaluation and marked as "N/A" accordingly. For example, testing for the credibility of utilization of preventive services relative to target levels in measuring utilization is designated as N/A, because the data element "utilization of preventive services" is itself the area being measured.

It should be noted that the assessment of testing in these summary tables refers only to evaluations that have been conducted to assess the validity of the indicator ***as a measure of the primary areas.*** Appendix A provides information about whether testing specific to the data elements of the indicator has been conducted (e.g., testing of response scales and item groupings used in satisfaction measures.

The ***availability*** of the indicator through NCHS data sources refers to the relative availability of indicator data in current NCHS data systems. ***High*** availability signifies that data are currently routinely collected on the indicator in a NCHS data source. ***Moderate*** availability signifies that an NCHS survey exists that could serve as a potential vehicle for data collection, but the information is currently not gathered. *Low* availability means that neither a current nor obvious potential NCHS vehicle for data collection on the measure has been identified. Low availability indicators that might be supported by data collected by non-NCHS surveys are noted by the symbol **, to direct the reader to more detailed information in Appendix A.

Each of the tables that follow captures summary information about indicator measurement type, the relationship of the indicators to their primary areas of measurement, and indicator quality. The discussion that follows is structured so that the assessment of indicators in each of the monitoring areas can be referred to independently of others.

3. The Analysis that Follows is Based on Presently Used Versions of Surveys Such as the NHIS, and Not On Versions Being Designed to Provide Greater Coverage of Key Subpopulations and New Areas of Information.

In the narratives that follow we note that indicators for narrowly defined subpopulations (e.g., subgroups within the U.S. Hispanic population) generally cannot be supported by the National Health Interview Study (NHIS) or the Behavioral Risk Factor Surveillance System (BRFSS) versions being used at the time of our analysis. Although NHIS allows disaggregation by major racial categories, it currently does not allow for further disaggregation. A few things should be noted, however.

The NHIS is currently in the state of transition. Changes being made in this survey are expected to result in greater periodic@; different variables will be included; there 'will be greater geographic resolution and more demographic subgroups will be distinguished. But the identification of subgroups within a data collection instrument doesn't necessarily mean that

disaggregation of the data and development for that subpopulation sample is appropriate. Some groups are likely to be small enough that sample observations within that "cell" will be too few to permit reliable estimates.

The small sample-size problems for certain subpopulations will also be true for state-level estimates (e.g., BRFSS) of subpopulations. In these instances, pooling strategies, for example, using data for the same population observed over time, should provide a means of tracking subpopulation status, and changes in key indicators.

4. Overview and Assessment of Proposed Primary Indicators in the NCHS-Identified Areas for Monitoring.

The subchapters that follow provide synopses of the primary indicators identified in this study. For each indicator the discussion identifies the system component that the indicator measures referring to the ten components identified in Chapter 3. The type of component and monitoring are italicized. We then discuss what changes in the measure mean and describes potentially important limitations in information value for monitoring system users for whom the indicator is identified as particularly meaningful. Consistent with the earlier discussion in Chapter 2, three major user groups are considered: policymakers, the public, and health researchers.

a. *Performance Area: Population Health Status*

Referring to ***Exhibit 9,*** below, three of the indicators for health status can be classified as behavioral risk factor measures. The majority of positive health effects resulting from current reductions in smoking prevalence, for example, will occur many years in the future, in the form

EXHIBIT 9

SUMMARY ANALYSIS OF PROPOSED INDICATORS BY PRIMARY AREA

										Indicator Credibility			Availability
HEALTH STATUS	**Nature of Indicator**		**Relationship**							**Face Validity**	**Sensitivity**	**Sufficiency**	**Through**
Indicator	**Subjective**	**Objective**	**Indirect**	**Direct**	**Contributor To**	**Consequence of**	**Correlated w/**	**Short Term**	**Long Term**	**H,M,L**	**H,M,L**	**H,M,L**	**NCHS H,M,L**
Percentage of population who are smokers		✓	✓		✓				✓	H	H	L	H
Percentage of population who are overweight	*	✓	✓		✓				✓	H	H	L	H
Percentage of population with excessive alcohol consumption	*	✓	✓		✓				✓	H	H-M	L	✕
Percentage of population reporting regular seat belt use		✓	✓		✓			✓		M	H	L	H
Infant mortality risk composite (perinatal mortality)		✓	✓			✓		✓		H	M-L	L	H
Infant mortality risk composite (infant mortality)		✓	✓			✓		✓		H	H-M	M-L	✕
Infant mortality risk composite (low birth weight)	*	✓	✓		✓	✓		✓	✓	H	H-M	L	H
Mortality rates by age group, by SES, by cause		✓	✓			✓		✓	✓	H-M	H-M	M	H
Disability rate composite index, by age	*	✓		✓		✓		✓		H	H	H	✕
Years of healthy life		✓		✓		✓		✓		✕	H	H	✕
Years of unhealthy life		✓		✓		✓		✓		✕	✕	H	✕
Premature chronic disease mortality	*	✓	✓			✓		✓		✕	✕	H	H

about changes in smoking prevalence over time can inform policy decisions regarding, for of reduced morbidity and mortality from smoking-related illnesses. Clearly, many factors other than those listed among ***Exhibit*** 9 (e.g., smoking, excess weight, alcohol consumption, and regular seat belt use) also effect health status. For example, factors outside the health care system such as environmental, economic, and genetic factors, and factors inside the system such as access to care and technological innovation. The four behavioral risk factor measures listed below will not, even taken together, predict changes in overall health status. Nevertheless, each of them represents a well-established behavioral link to health status, and each is more actionable for policy-makers than any general health status measure. Each of the indicators presented in Exhibit 10 are discussed in the sections that follow.

i. Health Status Indicator: Percentage of population who are smokers

Smoking prevalence is fundamentally a descriptive system ***status*** indicator, representing an important behavioral "input" into the health system that directly affects the health status of the ***population.*** Smoking has been linked to a greater prevalence of certain diseases. Observed changes in smoking prevalence are directly actionable, particularly for policymakers. Information about changes in smoking prevalence over time can inform policy decisions regarding, for example, tobacco tax legislation and education and outreach programs. It can also serve as a signal to those in the population who are in positions to effect change. For example, if an increase in smoking is seen among children, then school systems may make an effort to control smoking around the schools.

The National Health Interview Survey (NHIS) currently collects these data nationally at regular, although not annual, intervals.

The Behavioral Risk Factor Surveillance System (BRFSS) collects similar data at the state level, at frequent time intervals. The potential limitation of this system is that rates cannot always be reliably disaggregated at the state level by age, race, and sex, if the total state population is relatively small. In addition, before 1994, not every state participated in the system, hampering retrospective analysis at the state level. Data are also subject to somewhat greater response bias than in the NHIS, due to the use of telephone interviews.

ii. Health Status Indicator: Percentage of population who are overweight

The proportion of the population who are overweight is fundamentally a ***system status*** indicator, representing a factor that directly affects the health status of the ***population.*** Obesity has been associated with a variety of health conditions. Information on the proportion of the population that is overweight can be used by members of the public, to inform them of a trend and encourage a healthy lifestyle; be used by public policymakers, as an alert for health

promotion efforts and instruction regarding where such efforts would be best targeted, and researchers to conduct further research to explain the phenomenon.

Overweight prevalence data is collected at the national level through the NHIS, and less frequently through the NHANES. It is regularly collected at the state level through the Behavioral Risk Factor Surveillance System (BRFSS). The NHANES would be expected to provide the most accurate measurement because an individual's weight is measured at the time of the survey.

iii. Health Status Indicator: Percentage of population with excessive alcohol consumption

The proportion of the population with excessive alcohol consumption, particularly when examined by age group and relative chronicity of the behavior, is another system ***status*** indicator. The prevalence of alcohol abuse affects the overall health status of the ***population.*** Although moderate alcohol consumption may have beneficial effects, excessive alcohol consumption has been shown to increase disease rates. Data on excessive alcohol consumption, especially among young people, provides information about an potential future health status. Such information can be used by members of the public, to be informed of trends and encourage a healthy lifestyle; public policymakers as an alert for health promotion efforts and instruction regarding where such efforts would be best targeted; and researchers to conduct further research to explain the phenomenon.

Relevant data are collected at the national level, although not regularly. Efforts tend to focus an adolescents and young adults.

iv. Health Status Indicator: Percentage of population reporting regular seat belt use

The proportion of the population who report regular seatbelt use is a ***system status*** indicator, representing another "input" to the health system that potentially could affect the health status of the ***population.*** Such information is useful for public education (e.g., on the effectiveness of seat belt laws), but probably most important for policymakers. For example, data on seat belt use habits of younger drivers, who are most likely to have accidents, can identify the need for education or enforcement.

NHIS collects these data nationally at regular, although not annual, intervals. BRFSS collects similar data at the state level, at frequent time intervals. However, before 1994, not every state participated in the system, hampering retrospective analysis at the state level. Seat belt use data may be more vulnerable to respondent motivational bias than data for other questions on the BRFSS. Many states have seat belt laws, so that truthful answers for some people would require them to admit, over the telephone to a state official, to having broken the law.

v. Health Status Indicator: Infant Mortality Rate

Infant mortality, defined as deaths to infants before their first birthday, is an important health status or ***problem*** indicator for ***communities.*** The infant mortality rate is often seen as the best single indicator of the health status of a population, since it focuses on those who are most vulnerable to life-shortening illness. Access to and proper use of prenatal care, the general health status and behavioral characteristics of the mother, the quality of care received by the mother and the newborn, and the environment in which newborn is cared for are all factors affecting infant mortality. Increasing infant mortality rates in a population alerts policymakers that there is a problem in one or more of these areas, and is a signal to researchers to investigate further. Such information is not directly actionable for policymakers without more detailed information about the cause; however, policy responses are generally directed at increasing the proper and timely use of personal health care.

An obvious advantage to using infant mortality data are their wide availability. NCHS systems collect these data from birth certificates from the States. It is the one health statistic that can be used for international comparisons of health status in addition to national and regional analysis. Since data come from birth certificates, they are also not subject to sampling error although care must still be used in interpreting changes where a small number of deaths is involved.

Nevertheless, infant mortality is a blunt instrument. Like other mortality measures, it is only an indirect measure of health status, and does not take non-fatal morbidity or disability into account. It is also focused on a very specific segment of the population that is not representative of the rest. While infant mortality measures may provide a more sensitive warning signal, other measures will better represent the health status of the entire population.

vi. Health Status Indicator: Perinatal Mortality Rate

Perinatal mortality is defined as deaths among late-term fetuses and newborns (see Appendix A, Table A for precise definitions). Perinatal death is primarily ***an indicator*** of the ***health status*** of the mother. ***Problems*** with access to prenatal care and the quality of prenatal and obstetric care received contribute to perinatal mortality, although it is difficult to separate these effects using standard mortality data. For policymakers, perinatal mortality data serve primarily as problem alerts, usually to point out health status differences between women of various subpopulations (e.g., by race or income subgroup). Changes can signal the need for delivery system changes, or for outreach to disadvantaged groups. It is likely, however, that policymakers would need more information than this indicator provides. Thus, changes in the indicator also serve as a signal for researchers to do further research (e.g., with linked birth and death records from NCHS). Perinatal mortality statistics can be compiled from data from the National Vital Statistics system, which collects data on fetal deaths as well as infant deaths. Using perinatal mortality data carries the same advantages and limitations discussed for infant mortality data.

vii. Health Status Indicator: Rate of Low-Weight Births

Unlike infant mortality, low birth weight (defined as live births where birthweight is less than 2500 grams) is an outcome specific to the care the mother received prior to giving birth and behaviors (i.e., smoking) linked to low birth weight. Incidence of low birth weight is often seen as an indicator of the quality of prenatal care, or of access to and use of such care. It is, however, most readily an indicator of health ***status,*** and potential ***problems*** for two distinct populations: mothers and infants.

Generally speaking, low birth weight is a coincident indicator of poor health status of the mother, and captures health effects that infant mortality statistics do not. This is increasingly important as technology increases survival rates of even very premature infants. Such information is useful to policymakers who are interested more specifically in programs and policies affecting health care delivery to pregnant women and other women of childbearing age.

Low birth weight is also a strong predictor of future health problems for the infant, both in the near term (e.g., neonatal intensive care, more frequent infections) and long term (e.g., higher likelihood of physical, developmental, and behavioral disabilities). Changes in this indicator can alert policymakers to possible future health status effects, and their implications for utilization and expenditures as well.

As an indicator of the quality of prenatal care, infant mortality rates will only serve as a reliable indicator of quality if they are adequately risk-adjusted. Risk adjustment of outcome measures such as cost and quality generally refers to the accounting for higher rates of utilization and poorer outcomes that may be associated with certain demographic groups, because of poorer health status associated with age, poverty, pre-existing health conditions, and sometimes genetically-linked disease risk factors.

Like infant mortality data, data on birth weight are collected from birth certificates. Most important among the limitations that exist for using data on low birth weight is the current time lag between collection and publication. If policymakers are to respond to changes in health status (and, implicitly, to factors that affect health status, such as adequate access), they need to have this information more quickly than it is currently reported (Institute of Medicine, Access to Health Care in America, National Academy Press, 1993).

viii. Health Status Indicator: Mortality rates by age group, by socio-economic status and by cause

Mortality rates among the general population begin to address some of the shortcomings of infant mortality data. Data cover the entire population, allowing a broader and more representative look at health status of the ***population.*** Like the infant mortality rates just described, mortality rates generally serve as ***problem alerts*** to policymakers about the health status of the population and its subpopulations. Disaggregation by age is essential for meaningful

comparisons, and comparisons by socio-economic status and cause provide information policymakers and the public about the relative risks that various groups face. Such comparisons can also signal the need for more research.

Mortality statistics are, however, only indirect measures of health status. Like infant mortality data, they do not account for quality of life. They should not be over-interpreted, especially with respect to their ability to describe the overall well-being of populations. The National Vital Statistics System compiles mortality data from the death certificates of all fifty states and the District of Columbia. Statistically, since survey data are not used in compiling mortality statistics, sampling error is not a concern. However, disaggregation by cause of death can result in unreliable death rates for infrequent causes of death (e.g., when number of death *C* 100)—a concern when disaggregating by several other variables at the same time (MVSR, NCHS, December 18, 1994).

ix. Health Status Indicator: Disability rate composite index by age

The rate of disability in a population is a direct measure of that ***population's*** health ***status.*** One way to define a composite index of disability is as the percentage of the population with various levels of limitation, for example, using a standard set of definitions such as the Activities of Daily Living (ADLs) due to chronic conditions (see Appendix A, Table A for precise definitions, originally described as an objective of Healthy People 2000). Combined with mortality data, this disability measure provides a more complete picture of health status particularly among the elderly, and can serve to alert policymakers to health status trends that may require policy action. Data on disability are collected annually through the National Health Interview Survey.

x. Health Status Indicator: Years of healthy life, Years of unhealthy life

The number of years of healthy life is a comprehensive measure of health ***status*** developed by NCHS to measure the health status of the ***population,*** incorporating information on quality of life as well as mortality. The measure provides information not only about life expectancy, but about the quality of that life. It helps to answer the question, "Are we staying healthier longer?" Combined with its countermeasure, years of unhealthy life, it helps to answer the question, "Are we spending a larger ***proportion*** of our lives as healthy?" As compared to national spending on health care, such a measure can also help answer the question "What are we buying?" Such a measure is a critical system status measure of the most relevant population characteristic.

The methodology for computing years of healthy life combines mortality data (to estimate life expectancy) collected from the National Vital Statistics System (NVSS) with self-perceived

health status data from the National Health Interview Survey (NHIS) and reported disability, in terms of limitations of activity.

xi. **Health Status Indicator: Premature chronic disease mortality**

This indicator represents the mortality resulting from chronic diseases among the non-elderly. One possible way to define such a measure is to calculate a combined death rate among people ages 25-65 by the four leading causes of death: cancer, heart disease, stroke, and diabetes (Stoto 1992). Thismeasure is principally a health status indicator, designed ***as*** a ***problem alert,*** and focused on a specific segment of the ***population***-non-elderly adults. It uses an indirect measure, death, to represent health status.

Such a measure may also be seen as an indicator of quality of care or access to care, predicated on the principle that non-elderly people should not die from chronic diseases if those diseases are well-managed, or if these people lead healthier lives. Sufficient risk adjustment would be required to construct such indicators, especially for an indicator of quality.

The indicator is based on cause-specific mortality data, and is subject to the same limitations described above for mortality rates; however data variability should not be a concern, since a large proportion of total deaths fall into one the four diseases aggregated together for this indicator. Care must be taken in use and interpretation of this measure. Although the indicator is described here as serving a problem alert function, it is possible that the aggregate nature of the measure may obscure significant but opposite effects of different diseases. The indicator may say more about the health system's success in managing disease for patients in this subset of the population than the population as a whole included in the measure.

b. ***Performance Area: Access to Health Care***

i. **Access Indicator: Percentage of population with regular source of primary care**

This important access indicator is a direct measure of access to primary care services. It is a ***system status*** measure, providing information about the availability of facilities and providers which, together with ability to pay, affect ***service utilization.*** The components of the health system this measure addresses include the use of ***personal health services,*** both actual and potential. National and regional aggregate rates can provide trend data that can track the effects of any federal health care reforms on access to care. Perhaps more importantly, access can be tracked and compared across certain policy-relevant subpopulations, such as persons with chronic diseases, rural populations, Medicaid recipients, Medicare enrollees, and disadvantaged socio-economic groups.

EXHIBIT 10
SUMMARY ANALYSIS OF PROPOSED INDICATORS BY PRIMARY AREA

ACCESS	Nature of Indicator		Relationship							Indicator Credibility			Availability
										Face Validity	Sensi-tivity	Suffi-ciency	Through NCHS
Indicator	Subjective	Objective	Indirect	Direct	Contributor To	Through	Correlated w/	Short Term	Long Term	H,M,L	H,M,L	H,M,L	H,M,L
Percentage of population with regular source of primary care		✓	✓		✓			✓		H	M	H	M
Distribution of population by primary source of coverage		✓	✓		✓			✓		M-L	H-M	M-L	H
Mix of available health professionals relative to a "best practice" standard	*	✓	✓		✓			✓		M	M-L	M-L	L**
Adult screening rate for cancer, diabetes, and hypertension (relative to age/sex -appropriate target)	*	✓	✓			✓		✓		H	M	M-L	H
Rate of "avoidable hospitalization"	*	✓	✓			✓		✓	✓	M	M-L	M-L	H
Percentage of population with health insurance coverage		✓	✓		✓			✓		M-L	H-M	M-L	H

* = Indicator meaning may change over time.
** = Refer to Appendix A for potential sources.

Unfortunately, no current data source collects information about regular source of ***primary*** care, although more recent NHIS instruments have included a question about general regular source of care. Indeed, it is difficult to obtain information regarding "primary" care from surveys of the general public. The jargon is potentially confusing, and the classification of a provider as "primary" would require some judgment. For example, a person with a chronic disease such as diabetes may require a specialist to manage her care, in effect making that specialist her primary care physician. A more common example, women often use gynecologists as their primary care physicians, even though they may consider this type of physician a specialist.

A reasonable proxy for "primary care" can, however, be developed, most likely with the addition of several questions to the NHIS. To adequately capture potential variations in the provider that may be considered a regular source of primary care based on individual circumstances, the NHIS survey questions should capture the following information: 1) "regular" source of care; 2) consistent use of a single health care professional; 3) consistent use of a single health care facility; 4) emergency room usage; 5) use of/referral to "specialists;" and 6) presence of and regular treatment for chronic disease.

ii. **Access Indicator: Distribution of Population by Primary Source of Health Insurance Coverage (also see d. Health Insurance Indicators)**

This indicator is a measure of both insurance and access. It monitors health ***system status*** related to the ***health care finance.*** Changes in the measure provide information about who pays for care. Fluctuations may also reflect changes in the nation's public priorities regarding who should pay for and receive health care services.

The measure is particularly important to policymakers in determining potential areas where alternative sources of insurance are not fulfilling expected (or potentially reform-mandated roles. For example, the extent to which persons who work do not have employer-provided health insurance could imply a failure of policy relying on private employer-based health coverage.

A major limitation of this measure is that it does not account for possible links between different insurance benefit designs (specifying covered services and procedures) and population characteristics. While the measure can be disaggregated by socioeconomic status and age-adjusted, it does not show whether the level of coverage that particular subpopulations have is in fact appropriate and adequate to meet their health care needs. Examining persons with private health insurance as a whole does not distinguish those who have minimal coverage with high cost-sharing requirements from those who have more comprehensive coverage and the potential consequences of these differences.

Data on this measure is available through the NHIS and the Department of Commerce, Bureau of the Census Current Population Study.

iii. Access Indicator: Mix of Available Health Professionals Relative to a "Best Practice" Standard

This indicator of access monitors ***system status*** related to the health care ***work force*** component of the health system. A "standard' should be considered to benchmark levels of staffing (e.g., specialist vs. primary care physicians) that are neither adequate nor excessive overall and for a given type of care delivery. Changes in the indicator provide information about who is providing health services and whether the work force capacity corresponds to service needs. Fluctuations may also be related to changes in the access to appropriate care, the utilization of particular providers, health expenditures, quality of care delivered, and consumer satisfaction with care received.

This access measure is particularly useful to policymakers in identifying and addressing the needs of underserved populations. Policies which might be pursued in response to changes in this indicator include: adjusting levels of funding for medical education (e.g. to increase the number of primary care doctors), mandating states to set targets for graduating certain numbers of various health professionals, and providing incentives for providers to practice in underserved areas (e.g. rural and remote locations). The measure also provides an indication of how well the system is delivering high quality and cost-effective care.

A major limitation of the measure is that it is based on a "best practice" standard that is may also shift over time according to the priorities of those who set the standard. In addition, the number of different provider types provides only a proxy rather than a direct measure of the quality and cost-effectiveness of services delivered. Moreover, the indicator might show that the appropriate mix of health professionals is available in particular locations where access to care is still a problem. For example, barriers such as lack of transportation, inability to pay for care, and cultural issues such as language have an impact upon access to care that is as significant as having the right mix of providers. Thus, the indicator has the potential to show problems or improvements in areas where they do not actually exist.

Data on this indicator is not currently collected in NCHS or other surveys. However, the professional groups such as the American Medical Association (AMA), has data on the distribution and characteristics of practitioners. The Bureau of Health Professions, HRSA, supports the Area Resource File which collects data from these and other sources and compiles the information on a county basis.

iv. Access Indicator: Adult screening rate for cancer, diabetes, hypertension (relative to age/sex appropriate recommendations)

This access measure resembles another indicator classified under the utilization performance area, which focuses on utilization of preventive services. The measure presented here is specific only to screening services, only to adults, and only three disease groups: cancer,

diabetes, and hypertension (see Appendix A, Table A for precise definitions). Screening rates are used as indirect measures of access, under the premise that their use implies pro-active efforts by health care providers to deliver needed services at least at the primary level. This composite screening rate is an indicator of system status, and describes that component of the system related to ***personal health service utilization.***

Information about screening has been collected through supplements of the National Health Interview Survey. Questions would need to be added to the core survey to enable tracking on an annual basis. See the discussion above regarding the limitations of using the National Health Interview Survey. In reporting this indicator, it is important to show the elements separately as well as in a composite screening rate, so that individual but opposite effects can be seen unobscured by their combination.

c. ***Utilization***

i. **Utilization Indicator: Utilization of Primary Care Services (Relative to Appropriate-Level Benchmarks)**

This indicator of utilization monitors ***system status*** related to the ***personal health service utilization*** component of the health system. Changes in this indicator reflect the type and volume of services being used by health care consumers. Fluctuations may also indicate changes in access to care, appropriate or cost-effective use of primary care, types and levels of insurance coverage, health status, and the quality of care provided. Standards or benchmark levels of appropriate care are needed because "more" is not necessarily "better" when it comes to use of health care services.

This utilization measure is particularly important to policymakers in providing "intelligence" about policies for moving the health system in a direction that will meet the needs of the general public. For example, changes in the indicator might lead to policy actions to improve access to primary care, such as financing to increase the number of primary care physicians in underserved areas, allocation of funding for additional medical facilities in underserved areas, and/or regulation of insurance benefits.

A current limitation of measures of primary care is the lack of an accepted operational definition of this type of care. A further major limitation in the indicator's information value for policymakers is that it provides a broad picture of primary care utilization without specifying what functions of the health system contributed to the utilization level. Consequently, it may be difficult to determine the appropriate types of policy initiatives needed to improve levels of primary care utilization.

EXHIBIT 11

SUMMARY ANALYSIS OF PROPOSED INDICATORS BY PRIMARY AREA

UTILIZATION	Nature of Indicator		Relationship							Indicator Credibility			Availability
										Face Validity	Sensitivity	Sufficiency	Through
Indicator	Subjective	Objective	Indirect	Direct	Contributor To	Consequence of	Correlated w/	Short Term	Long Term	H,M,L	H,M,L	H,M,L	NCHS H,M,L
Utilization of primary services (relative to target levels)	*	✓		✓	✓			✓		M	H	M	M
Utilization of preventive services (relative to target levels)	*	✓		✓	✓			✓		M	H	M	M
Rate of "avoidable" hospitalizations	*	✓		✓	✓			✓	✓	H	H	M	H
Percent of emergency room visits for non-urgent reasons		✓		✓	✓			✓		M	H	M	H

* = Indicator meaning may change over time.

Another limitation is that the indicator is only meaningful in comparison to target levels. While the number of primary care physician visits are readily countable, the target level of age-appropriate minimum number of visits is less objectively determined. The target level may be subject to change over time, making the measure vulnerable to distorted interpretations.

Currently, this measure is not directly collected by NCHS through a population based survey, although the National Ambulatory Medical Care Survey (NAMCS) classifies care based on a comprehensive reason-for-visit system and could be used to estimate aggregate use rates of primary care but not the percentage of persons receiving the care. The National Medical Expenditures Survey (NMES) is a population based survey that asks about the nature of care for visits and to what types of medical providers, but this data is collected and made available rather infrequently (every 5-10 years). NCHS may want to include a type of care measure in a population-based survey that is collected more frequently (e.g. annually) so that it is possible to gauge the immediate effect of policies on utilization levels. This may aid policymakers in understanding whether they are pursuing policies that are meaningful and relevant to primary care service use. Also, to prevent further distortion of the indicator findings for policy use, it may be helpful to track this measure in relation to indicators of inappropriate use of acute care (e.g. non-urgent ER visits).

ii. Utilization Indicator: Utilization of Preventive Services (Relative to Benchmark Levels)

This indicator of utilization monitors ***system status*** related to the ***persona2 health utilization*** component of the health system. The information value of this measure is similar to that of the previously discussed indicator, utilization of primary services. Changes in the measure reflect the type and volume of services being used by health care consumers. Fluctuations may also indicate changes in the availability of preventive services and providers, health status, insurance coverage, and the quality of care provided. The need for standard or benchmark levels of utilization for this indicator is similar to that described for primary care utilization.

This utilization measure is particularly important to policymakers in providing "intelligence" about policies for moving the health system in a direction that will meet the needs of the general public. For example, changes in the indicator might lead to policy actions to improve access to preventive care, such as expanded preventive care education and outreach, increased funding for government-run preventive care programs, and guidelines for, or regulation of, HMOs, physicians, and other providers in the services they are required to perform.

A major limitation in the indicator's information value for policymakers is that it provides a broad picture of preventive care utilization without specifying what functions of the health system (e.g. access to care, insurance) contributed to the utilization level. Consequently, it may be difficult to determine the appropriate types of policy initiatives needed to improve levels of preventive care utilization.

Another limitation is that the indicator is only meaningful in comparison to target levels. These targets of the percentage of people who should receive age/sex appropriate screening and immunizations would likely be set by experts, such as the U.S. Preventive Services Task Force. While this percentage may be readily countable, the target level is subject to change over time, depending on the priorities of whichever experts are setting the standards. Thus, the measure is potentially subject to biases that may have an impact on what interpretations can be derived from the indicator findings.

Currently, this measure is not directly collected by NCHS through a population-based survey, although the National Ambulatory Medical Care Survey (NAMCS) classifies care based on a comprehensive reason for visit system and could be used to estimate aggregate use rates of preventive care but not the percent of persons receiving the care. The National Medical Expenditures Survey (NMES) is a population based survey that asks about the nature of care for visits and to what types of medical providers, but this data is collected and available every five to ten years. NCHS may want to include a type of care measure in a population-based survey that is collected more frequently (e.g. annually) so that it is possible to gauge the immediate effect of policies on utilization levels. This may aid policymakers in understanding whether they are pursuing policies that are meaningful and relevant to preventive service use.

iii. Utilization Indicator: Rate of "avoidable" hospitalizations

An "avoidable" hospitalization is defined as a hospitalization for a condition that should have been avoided had adequate outpatient care been received (see Appendix A, Table A for precise definition). This measure is most clearly a ***problem indicator*** for ***health care utilization,*** providing some measure of the efficiency and appropriateness of resource use. Such a measure is also indicative of quality of care, although defining the measure precisely enough to remove the effects of access and behavior is methodologically problematic, given our definition of quality. Regardless, policymakers can use this indicator to identify populations that are particularly vulnerable (e.g., by race or socio-economic status, or by source of payment).

Data for such an item is available annually from the National Hospital Discharge Survey. Because it is a survey, disaggregation into narrowly defined, small subpopulations could prove statistically problematic. Currently, geographic disaggregation is only possible down to the level of the four Census regions.

The construction of this indicator requires the use of clinical consensus regarding the proper treatment of a set of chronic or acute conditions. In tracking the indicator over time, it should be understood that this clinical consensus can evolve over time, and new conditions can be identified that are should be included among the list. This may complicate comparisons in different years,

iv. **Utilization Indicator: Percentage of emergency room visits for non-urgent reasons**

This ***utilization*** indicator is a ***problem alert*** for policymakers. High non-urgent use of emergency rooms at best suggests poor use of resources. Such use also implies higher than necessary expenditures and a lack of access as well. Policy makers can identify vulnerable populations for targeted policies (e.g., managed care for Medicaid). Researchers may be prompted to investigate further, for example to determine if the mix of services required in these non-urgent visits is changing. Individual hospitals could also use national or regional averages as benchmarks against which to compare their own experience.

Data for this indicator are available through the Emergency Department Summary of the new National Hospital Ambulatory Medical Care Survey (NHAMCS). Disaggregation into detailed subpopulations of interest could prove statistically problematic. Care must be taken in interpreting this indicator, which superficially seems very straightforward. Particularly when addressing subpopulations, it is possible that a change in non-urgent use is hidden by a corresponding and legitimate change in ***urgent*** use. One possible way to avoid this problem is to use Census population estimates as denominators for the subpopulation being analyzed, and compute per capita estimates of non-urgent ER use.

d. ***Insurance***

i. **Insurance Indicator: Extent of Covered Services Relative to Identified Standard**

This indicator of insurance monitors ***system status*** related to the ***finance*** component of the health system. Changes in the measure provide information on the level of and type of services being purchased. Fluctuations may also indicate changes in access to care, utilization of health services, personal expenditures, and quality of care.

The indicator is particularly useful to policymakers in alerting the need to examine the types of services being insured and whether these services adequately meet the health needs of the population. For example, changes in this measure may prompt policymakers to regulate the insurance industry's benefit design and eligibility criteria.

This measure also provides information that is particularly important to certain members of the general public. Specifically, payers of health care such as private employers and the federal government have a vested interest in "shopping" for health plans that provide their employees with the most services at the least cost. This indicator can be used by payers to choose the "best buy" among health plans by comparing the extent of covered services versus cost of various plans.

EXHIBIT 12

SUMMARY ANALYSIS OF PROPOSED INDICATORS BY PRIMARY AREA

INSURANCE	Nature of Indicator		Relationship							Indicator Credibility			Availability Through
										Face Validity	Sensitivity	Sufficiency	
Indicator	Subjective	Objective	Indirect	Direct	Contributor To	Through	Correlated w/	Short Term	Long Term	H,M,L	H,M,L	H,M,L	NCHS H,M,L
Extent of covered services relative to identified standard	*	✓	✓		✓			✓		M	H	M	M
Percentage of population with health insurance coverage		✓		✓	✓			✓		H	H	H	H
Newly enrolled in Medicaid		✓		✓		✓		✓		H	H	M	M
Distribution of population by primary source of coverage		✓		✓	✓			✓		H	H	H	H

* = Indicator meaning may change over time.

A major limitation of the indicator is that the set standard of basic care may shift over time. This variability makes the measure potentially subject to biases that will impact what interpretations can be derived from indicator findings. Also, the indicator presents only one dimension of the nation's insurance status. For instance, the indicator does not measure how many people actually use or receive the basic services for which they are eligible. Thus, the extent to which changes in this indicator are directly actionable to improve system functioning is constrained by the lack of specificity of how this aspect of insurance impacts the care received and, ultimately, the health of the nation.

NCHS does not currently collect data on this measure. A similar measure that NCHS has collected data for is health care coverage for persons over 65 years old, according to type of care and selected characteristics. Similar data about types of insurance coverage are collected in the National Medical Expenditures Survey (NMES). It should be noted, though, that data collected by NMES is not available annually.

ii. Insurance Indicator: Percent of the Population With Health Insurance Coverage

This indicator of insurance monitors ***system status*** related to ***the system*** *finance* component of the health system. Changes in the measure provide information about the relative number of people who have coverage for health care, at a single point in time. Fluctuations may also reflect changes in access to care and impact the utilization of health services, total health expenditures, and the public's perception and satisfaction with the direction the system is going.

The indicator is particularly important to policymakers in providing a measure of how well the financial system is supporting the nation's health services needs. For example, changes in the measure may alert policymakers of a need to change Medicaid eligibility requirements to provide for the needs of vulnerable populations such as the poor and unemployed.

A major limitation of this indicator is that changes are not measurably linked to the nation's health status. Insurance status is primarily an indication of access to affordable care, which is only one of several determinants that affect the health of the population. A time trend analysis comparing fluctuations in this measure to health status and outcome indicators during the same period of time might provide a more complete picture of the status of the system in providing for the population's needs.

Data is collected periodically on this measure in the Insurance supplement of the NHIS. Other surveys that collect this data are the Current Population Survey and NMES.

iii. Insurance Indicator: Newly Enrolled in Medicaid

This indicator is a strong measure of both expenditures and insurance that monitors ***system status*** related to the ***finance*** component of the health system. Changes in the measure

reflect the number of people who have newly enrolled in the Medicaid program over the past year. Fluctuations in the measure may indicate changes in access to care for those who were previously uninsured, in the number of Americans who have health coverage, and changes in the levels of national expenditures on Medicaid programs.

The indicator is particularly important to policymakers because it provides (1) an alert of a likely increase or decrease in the total amount of Medicaid expenditures and in the proportion of total U.S. health expenditures that is spent on Medicaid, and (2) a signal about the adequacy of the nation's safety net insurance coverage. This measure can also provide a gauge of short term effects of policy initiatives, as data collected reflects changes in enrollment over the past year. For example, increased regulation of insurance eligibility requirements might be reflected in the next year by increases or decreases in the number of people newly enrolled in the Medicaid program and in Medicaid expenditures.

A major limitation of the indicator is that it is difficult to determine the processes or specific health policies that resulted in this outcome measurement of insurance coverage and health spending. Factors ranging from the unemployment rate to changes in insurance benefit design and eligibility criteria are likely to cause dramatic changes in this measure. Thus, the indicator provides a warning of a problem in the system related to the cost of health care, but it does not point to policies that should be changed or introduced in order to improve system status. Data on this indicator are not currently collected by NCHS. However, data is available through the Health Care Financing Administration (HCFA).

iv. Insurance Indicator: Distribution of population by primary source of coverage

This measure is a primary indicator of access and insurance. A description of its use is provided in the section addressing Indicators of Access to Care.

e. *Expenditures*

i. Expenditures Indicator: Out of Pocket Spending As a Percentage of Disposable Income, Acute Care

This indicator of expenditures monitors system ***status*** related to the system finance component of the health system. Changes in the measure provide indirect information on the payers of care and the services that are or are not being purchased. Fluctuations may also be related to the affordability of acute care services and to the extent of health insurance coverage.

This expenditures measure is particularly important to policymakers in providing information about the financial burden of acute care services experienced by the public. Variability in the measure may prompt policymakers to act on issues of health care costs, such as by regulating insurance premium costs and coverage for acute care services.

EXHIBIT 13

SUMMARY ANALYSIS OF PROPOSED INDICATORS BY PRIMARY AREA

EXPENDITURES	Nature of Indicator		Relationship							Indicator Credibility			Availability Through
										Face Validity	Sensitivity	Sufficiency	
Indicator	Subjective	Objective	Indirect	Direct	Contributor To	Consequence of	Correlated w/	Short Term	Long Term	H,M,L	H,M,L	H,M,L	NCHS H,M,L
Out of pocket spending as a % of disposable income, acute care		✓		✓	✓			✓		H	H	M	H
Out of pocket spending as a % of disposable income, long term care		✓		✓	✓			✓		H	H	M	H
National health spending as a % of GDP		✓		✓	✓			✓		H	H	H	L**
Newly enrolled in Medicaid		✓	✓		✓			✓		H	M	M	M
Percentage of Americans who had problems paying medical bills last year	✓		✓		✓			✓		L	H	M	M

** = Refer to Appendix A for potential sources.

A major limitation in the indicator's information value for policymakers is that it is a broad measure that is affected by a variety of inputs, including prices, health care consumption, tax payments, wages and other income, insurance coverage, and the size of deductibles or copays. If policymakers determined that a certain percentage was an unacceptable level, it would be difficult to determine which functions of health costs ought to be changed in order to reduce the percentage. Concomitantly, the determination of acceptability levels for out-of-pocket spending on acute services may be subject to the biases of those who are interpreting indicator results. To present a more complete story about the real burden of health costs that Americans bear, it may be important to compare this percentage with levels of spending on other types of care (e.g. long term care), and other essential goods and services, examining the distribution of persons at different levels of this measure, and with public opinions about health spending.

Another limitation is that the indicator may vary significantly in its measurement depending on the population being assessed. For example, members of HMOs are likely to have lower percentages because managed care plans tend to encourage reduced lengths of stay for acute care patients. It may be important to disaggregate the population into key groups in order to interpret the indicator at a national level for policy purposes.

Finally, the self-reported nature of current measures of out-of-pocket expenditures, income, and consumption present response bias issues. NCHS does not currently collect data on this indicator, the NHIS could serve as a potential vehicle for data collection if a disposable income variable was constructed. Similar data about types of visits/services covered by a flat fee are collected in NMES.

ii. Expenditure Indicator: Out of Pocket Spending As a Percentage of Disposable Income, Long Term Care

This indicator of expenditures monitors status related to the *system finance* component of the health system. Changes in the measure provide indirect information on who the payers of care are, and what services are being purchased. Fluctuations may also be related to the affordability of care, availability of long-term care providers, and the extent of long-term care insurance coverage.

This expenditures measure is particularly important to policymakers in providing information about the financial burden of long-term care services experienced by the public. Variability in the measure may have direct policy implications on programs that the elderly rely upon, such as Medicare and Medicaid.

A major limitation in the indicator's information value for policymakers is that it is a broad measure that is affected by a variety of inputs, including prices, health care consumption, tax payments, wages and other income, Medicaid policy, private insurance coverage, and the size of deductibles or copays. It does not specify what parts of the health system (e.g. availability of providers) might require "tinkering" in terms of policies to achieve appropriate levels of out-of-

pocket spending on long term care services. Definitions about what constitutes "appropriate" spending may shift over time, making interpretations of-indicator results subject to change. To present a more complete story about how the costs of long term care services fit into the overall financing of the health care system, it may be important to compare this percentage with levels of spending on other types of care (e.g. acute care) and other essential expenditures, and examine the distribution of persons at different levels of this measure .

Another limitation is that the indicator may vary significantly in its measurement depending on the population being assessed. For example, low income elderly are likely to have higher percentages, as they may be unemployed and relying on Medicaid rather than comprehensive benefits plans to serve their long term care needs. It may be important to disaggregate the population into key groups in order to interpret the indicator at a national level for policy purposes.

Finally, the self-reported nature of current measures of out-of-pocket expenditures, income, and consumption present response bias issues. Disposable income may not be the most appropriate denominator for long term care, however, because individuals use substantial amounts of their personal assets to pay for this care. A more appropriate denominator may be disposable financial resources, but defining and measuring such a concept is difficult, particularly within a survey.

NCHS does not currently collect data on this indicator. However, the NHIS could serve as a potential vehicle for data collection if a variable for disposable income was constructed. Data may also be available through NMES and the Families USA Foundation. However, it would be necessary to disaggregate out-of-pocket costs for the elderly into long-term costs.

iii. Expenditure Indicator: National Health Spending as a Percentage of GDP

This indicator of expenditures monitors ***system status*** related to the system ***finance*** component of the health system. Changes in the measure reflect differences in the amount of money the government, businesses, and individuals spend on health care relative to other programs and services.

The indicator is primarily important to the general public, as it provides a benchmark of national consumption priorities. This information can be used by voters to determine whether they should encourage changes in public policy. The indicator is probably most directly actionable by policymakers however. For example, policymakers may reduce Medicaid and Medicare program expenditures in order to reduce the level of national spending if a general public consensus exists that indicates that the country is spending too much on health care.

A major limitation of this indicator is that it presents a summary of the nation's health spending that does not account for specific details that are relevant to the country's "story" about

system costs. For example, the measurement can easily be interpreted as "too much" or "too little" without ever clarifying issues such as the value of services purchased, levels compared to spending in the past and in other countries, and composition of services provided (e.g. primary care, outpatient settings). The failure to consider such factors thus has the potential to distort conclusions about what changes in the indicator signify. Moreover, the indicator provides a comprehensive alert about health spending that does not specify particular components of the system that policymakers should address.

NCHS does not currently collect data on this measure. However, data is available through HCFA.

iv. Expenditure Indicator: Percentage of Americans Who Had Problems Paying Medical Bills Last Year

This is a primary indicator of expenditures and consumer satisfaction. See consumer satisfaction section for discussion of the indicator.

v. Expenditure Indicator: Newly Enrolled in Medicaid

This is a primary indicator of expenditures and insurance. See insurance section for discussion of the indicator.

f. *Performance Area: Quality/outcomes*

i. Quality Indicator: Population-based mortality rates

The following three indicators were described in their capacity as health status indicators in the Health Status section above:

- Infant mortality risk composite (perinatal mortality)
- Infant mortality risk composite (infant mortality)
- Mortality rates by age group, by socio-economic status (and by cause)

In order to function as indicators of quality, these outcomes-based measures require risk-adjustment, to account for population differences having nothing to do with the quality of health care received. It is important to remember, however, that these mortality statistics are *population-*based, so that even when adjustments are made for risk, these indicators would not represent the quality of care received in a certain institution or type of institution. Rather, the "quality"

EXHIBIT 14

SUMMARY ANALYSIS OF PROPOSED INDICATORS BY PRIMARY AREA

QUALITY/OUTCOMES	Nature of Indicator		Relationship							Indicator Credibility			Availability Through
										Face Validity	Sensitivity	Sufficiency	
Indicator	Subjective	Objective	Indirect	Direct	Contributor To	Consequence of	Correlated w/	Short Term	Long Term	H,M,L	H,M,L	H,M,L	NCHS H,M,L
Perinatal mortality		✓	✓			✓		✓		H	H	M-L	H
Infant mortality		✓	✓			✓		✓	✓	H	H	M	H
Low birth weight	*	✓		✓				✓		H	H	M	H
Mortality rates by age group, by cause		✓	✓			✓		✓	✓	H-M	M	M	H
Hospital patient mortality rate by age group		✓	✓			✓		✓		H	M	M	H
Rate of pharmaceutical and other technological innovation		✓	✓		✓				✓	L	M	L	L**

* = Indicator meaning may change over time.
** = Refer to Appendix A for potential sources.

reflected in these measures would be the marginal impact of health care, accounting for other significant contributors, to mortality rate, such as age, race, sex, income, regular access to care, risky behavior, and risks posed by the surrounding environment.

If other factors are controlled for, such broad "quality" indicators can, however, be instructive to health policymakers, health care researchers, and the general public. They can provide a "bottom line" measure of quality, that is, they measure the effect of whatever. level of services that people are receiving. Instead of implications for clinical quality (such as the need for practice guidelines), these measures can indicate systemic failures with respect to certain subpopulations (e.g., patients in small hospitals).

As implied above, a number of factors should be controlled for when analyzing mortality rate. Only basic risk adjustments can be made using data provided on death certificates, from which most mortality data is collected. Such data provides a very limited basis for comparisons among socio-economic groups.

ii. **Quality Indicator: Hospital patient mortality rate by age group**

Like the outcomes measures above, hospital patient mortality data do not directly provide indications of the quality of care provided in a hospital. Only after risk-adjusting can clearer statements be made about quality. Controlling for age, race, and sex is a major component of risk adjustment. However, as discussed above, many other population characteristics can also affect outcomes, especially when using as broad a measure as mortality to measure quality of care.

Data from the National Hospital Discharge Survey allows for some risk adjustment, i.e., based on age, race, and sex, and expected source of payment. However, comparisons can only be made nationally or regionally, and between different types of hospitals, based on size, ownership type, or similar categories. Such statistics can be used as rough benchmarks for individual hospitals to compare themselves against, and for showing broad trends over time. The lack of risk-adjustment capability, however, effectively makes these estimates more "impressionistic" than anything else.

It should be noted, that many researchers, providers, and others in the health care field are skeptical of approaches that rely on death or disability rates as quality indicators, largely because current risk-adjustment methodologies lack the sophistication necessary to allow valid comparisons of outcomes across providers. The use of large scale survey data, and the limited application of any analysis to the level of hospital type and the like, should temper these concerns, however.

iii. Quality Indicator: Rate of Pharmaceutical and Other Technological Innovations

This indicator of quality monitors health ***system status*** related to ***medical research and technology.*** Changes in the measure provide information about the current focus and level of research activity and about the rate of adoption of new medical technology. Fluctuations in the measure may also reflect changes in health policy, health insurance, care quality, utilization of health services, health expenditures, and public perception.

The measure may be particularly useful to policymakers in helping determine appropriate budgets for medical research funding and to assess the possible needs for changes in regulatory review of new drugs and medical devices. The indicator provides an alert to monitor links between the utilization, cost, and quality of health services.

A major limitation of this measure is that it does not provide information about the medical necessity or cost-effectiveness of the pharmaceutical and technological innovations. Also, changes in the measure are related but not specific to the areas of quality, utilization, and expenditures. Thus, the direct impact of fluctuations in this measure is difficult to determine and may constrain the extent to which the indicator is directly actionable.

NCHS does not currently collect data on this measure. However, data may be available through the Food & Drug Administration (FDA).

g. *Performance Area: Consumer Satisfaction*

i. Consumer Satisfaction Indicator: Percent of Population Willing to Recommend Their Current Health Plan to Friends and Family

This indicator of consumer satisfaction monitors ***problems*** related to the ***personal health service utilization*** component of the health care system. Changes in this indicator help to identify whether there are problems in the cost, accessibility, or quality of care offered in a benefits plan, and provide insight on which subpopulations are expressing and may be inclined to act upon such concerns. The measure is most directly "actionable" by the public and policymakers. It alerts these users of a possible failure of health plan to provide services in a satisfactory way for the plan beneficiaries.

For example, if the population that the indicator measures were to be disaggregated into subpopulations of HMO plan enrollees and PPO plan enrollees, members of the general public who are enrolled in either of these plan types could use the indicator to determine whether they should switch from their current plan to the plan with a higher percentage of enrollees who are willing to recommend their health plan to friends and family. Policy makers, in turn, may find it useful to know whether the public has become increasingly or less willing to support public officials on issues related to managed care.

EXHIBIT 15

SUMMARY ANALYSIS OF PROPOSED INDICATORS BY PRIMARY AREA

CONSUMER SATISFACTION	Nature of Indicator		Relationship							Indicator Credibility			Availability Through
										Face Validity	Sensitivity	Sufficiency	
Indicator	Subjective	Objective	Indirect	Direct	Contributor To	Consequence of	Correlated w/	Short Term	Long Term	H,M,L	H,M,L	H,M,L	NCHS H,M,L
Percentage of the population (not) willing to recommend their current health plan to friends and family	✓		✓			✓		✓		L	M	L	M
Percentage of the population more satisfied with current plan than those available in past	✓			✓		✓		✓		L	M	M	M

Limitations regarding the use of this satisfaction indicator stem from the fact that the measure is subjective and indirectly assessed. Precision is difficult to achieve in the data elements of the measure, so interpretations of what changes in the indicator signify will depend on the criteria used to define the population in question and to determine the extent to which factors that affect "willingness to recommend" are related to satisfaction per se. Specific methodological issues related to survey activities (e.g. response bias, context and wording of question [9]) also make the indicator fairly low in reliability (refer to Appendix A).

Data for this measure is not currently collected by NCHS but could potentially be added to the NHIS Supplement in the Access and Coverage sections. The measure is widely accepted and used regularly in consumer satisfaction surveys to assess health plan quality. Major surveys that contain this measure or an indicator of similar wording include: GHAA, EHCVS, CSS/OPM, CalPERS, and the HMO Group. However, a major limitation of data collected in these surveys is that the samples tend to be nonrepresentative of the population as a whole, as the surveyed population not only belong to a health plan but also work for employers who provide sophisticated benefits packages which solicit satisfaction information.

ii. Consumer Satisfaction Indicator: Percentage of Population More Satisfied With Current Plan Than Those Available in Past

This indicator of consumer satisfaction monitors system ***status*** regarding the component of ***personal health service utilization.*** Changes in the indicator may point to a need to address the type, level, and volume of services being covered for certain subpopulations.

Policy makers in particular may use the measure to examine links between plan satisfaction and problems addressed within particular subpopulations (e.g. members of various plan types) across the health care system. For example, a need to examine the cost, quality, and access to care provided by managed care plans might be suggested if enrollees who switched plans in the past year expressed that their level of satisfaction with their current HMO plan was not as high as their satisfaction with the fee-for-service plan available to them in the past.

A major limitation of the indicator is that it is subjective and vulnerable to response biases in its data elements. Methodological issues ranging from survey administration to inconsistent wordings[10] may have an impact on the level of satisfaction that respondents indicate. Concomitantly, different results are likely to be obtained for different subpopulations polled. It may be difficult to use results of this measure at a national level for policy purposes due to the potential for multiple interpretations of indicator findings.

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[9] Blendon, Robert J., Hyams, Tracey S, and Benson, John M., "Bridging the Gap Between Expert and Public Views on Health Reform," Journal of the American Medical Association Vol. 269, No. 19 (May 19,1993): 2573-2578.

[10] Blendon, Robert J., and Donelan, Karen, "Interpreting Public Opinion Surveys," Health Affairs (Summer 1991): 166-169.

Data for this measure is not currently collected by NCHS but could potentially be added to the NHIS Supplement in the Private Plan and Coverage Detail section. Indicators with similar though not exact wordings have appeared in a variety of other surveys. For example, a Fact Finders/Novalis Corp poll in 1993 asked about satisfaction with the quality of health care services that the surveyed group was now receiving. It should be noted, though, that data on this indicator may be difficult to interpret at a national level. Since the indicator requires the sampled population to compare current and past health plans, it is important to disaggregate the data by specific subpopulations (e.g. enrollees in plan A) in order to have a reliable basis for comparison.

h. ***Performance Area: Public Perceptions***

i. **Public Perceptions Indicator: Consumer Confidence that if They or A Member of Their Family Became Ill, They Would Receive Appropriate Care**

This indicator of public perception monitors ***problems*** related to how well the health system serves the general ***population.*** Changes in this indicator reflect the degree to which the public feels assured that their health and health care needs will be met by providers (e.g. physicians) and payers (e.g. insurance companies). These fluctuations are indirectly related to the consumer satisfaction, quality, spending and the health status of the population, as the indicator requires respondents at a broad level to extrapolate a prospective evaluation of care that they will receive based on health outcomes they have experienced from the quality of care they received in the past.

The measure provides policymakers, in particular, with a useful tool to gauge public approval of the direction the health care system, which has an impact on the types of health care policies the public is likely to support with a vote. For example, if significant disparities were found in the level of confidence expressed between low-income and middle class populations, policymakers might construct their re-election platforms on policies designed to reduce care inequities in access and quality of care.

Potential problems or limitations in the use of this indicator are related to the subjective nature of the measure. While the indicator directly collects data on public opinion regarding health care provision, the general public may have a rather limited and unreliable basis for assessing the ability of the "system" to deliver appropriate care.[11] Specific methodological issues for policymakers to consider concerning the interpretation of survey responses have been raised by opinion poll expert Robert Blendon[12], such as the importance of timely data that is consistent with findings across multiple surveys (refer to Appendix A). The subjectivity inherent in the data elements of the indicator may also make the indicator a better measure of the perceptions and experience of the population being polled than of the health system itself.

[11] Berk, M.L. "Should we rely on polls?" Health Affairs (Spring (I) 1994): pp 299-300.
[12] Blendon, Robert J., and Donelan, Karen, "Interpreting Public Opinion Surveys," Health Affairs (Summer 1991): 166-169.

EXHIBIT 16

SUMMARY ANALYSIS OF PROPOSED INDICATORS BY PRIMARY AREA

PUBLIC PERCEPTION	Nature of Indicator		Relationship							Indicator Credibility			Availability Through
										Face Validity	Sensitivity	Sufficiency	
Indicator	Subjective	Objective	Indirect	Direct	Contributor To	Consequence of	Correlated w/	Short Term	Long Term	H,M,L	H,M,L	H,M,L	NCHS H,M,L
Consumer confidence that if they or a member of their family became ill, they would receive appropriate care	✓			✓	✓			✓		L	H	M	M
Percentage of the population who feel that US is spending too much on health care	✓			✓	✓			✓		L	H	M	H
Percentage of Americans who had problems paying medical bills last year	✓			✓	✓			✓		L	H	M	M

Another major reliability issue is that the indicator is not currently available and has not been tested, although an analogous economic indicator of consumer confidence is collected regularly in polls used to predict consumer spending. Fluctuations in the measurement which may suggest improvement or deterioration in system status may present an inaccurate picture due to the response biases inherent in the data collected by the indicator. Policy makers should be cautious in their interpretations of what changes in the indicator mean, as the indicator does not measure actual change or the significance of change in any part of the system.

This indicator has not yet been used or tested. It could potentially be added to the NHIS Supplement in part A "Access to Care." Currently there is a question which asks: "Is the-able to provide for most of-needs when-is sick?"

ii. Public Perceptions Indicator: Percentage of the Population Who Feel US is Spending Too Much on Health Care

This indicator of public perception monitors ***problems*** related to the ***system finance*** component of the health system. It is most meaningful when interpreted in relation to survey results on the percentages of the population who feel that US spending is "too little" or "worth it". Changes in this indicator inform policymakers, researchers, and the public on the public's opinion about the value of care received in relation to the amount of US health expenditures. Increases in this percentage relative to a specific reference point signal that the public believes that medical expenditures are too high and may reflect an actual problem with containing system costs. Decreases, concomitantly, may indicate that the public approves of the direction that policies relevant to health spending are going.

Policy makers in particular may use the indicator to predict public willingness to support legislation relevant to health spending, although the indicator's lack of specificity may make it difficult to interpret what particular legislation would be acceptable to the public. If tracked over time from a specified reference point, the measure potentially could be used as a lagging indicator of trends in public behavior in reaction to policy initiatives regarding spending.

A major limitation of the indicator is that fluctuations may only be indirectly linked to actual changes in health spending. Since this indicator measures a ***perception*** about the amount of spending, policymakers who may interpret an increase in this indicator as an alert to reduce health expenditures should be wary of the limited implications of this indicator on policies related to the ***actual*** amount of health spending. Efforts such as increased information dissemination about what US health dollars are being spent on could have an effect on public perceptions of health spending, particularly in relation to health system components of expenditures, insurance, public perceptions, and consumer satisfaction (refer to Appendix A). For example, the public may not be aware of the areas that health dollars fund; once this knowledge is made available to them, their opinions about how much the US spends overall on health care may change. Therefore, changes in public perception regarding US health spending can be influenced by changes in aspects of the health system besides the budget. The indicator

thus has the potential to distort interpretations about health spending because of its lack of specificity with respect to ***why*** the public believes spending is too much.

Data on this measure has been collected in recent years, appearing with inconsistent wordings and without regularity in surveys by pollsters such as CBS News/New York Times. The indicator has also been used in polls by polling groups such as: Kaiser/Harvard/Princeton Survey Research Association, Gallup, and the National Opinion Research Corporation. It is not currently collected in a NCHS survey. However, data for this measure could potentially be collected in the NHIS. Part C "Private Plan and Coverage Detail" of the NHIS supplement currently asks two questions related to this measure (see Appendix A).

iii. Public Perceptions Indicator: Percentage of Americans Who Had Problems Paying Medical Bills Last Year

This indicator of public perception and expenditures monitors ***problems*** related to the ***system finance*** component of the health system. Changes in this measure provide indications about the affordability of health care and may be linked to adverse outcomes resulting from too much or too little coverage.

The measure provides policymakers in particular with information about public sentiment related to health care finance policy at a national level. Policy makers may be able to use the indicator to anticipate the type of finance policies the public is likely to be interested in and support. For example, an increase in this measure may help policymakers to determine whether Americans would favor increased government intervention to cut costs, such as providing national insurance with global budgets.

A major limitation of the indicator is that its data elements lack precision due to the response biases inherent in opinion measures sometimes introduced by variations such as he use of different wordings of a measure on survey responses. The public's perception of what they can afford to pay for medical bills may be quite different from their actual ability to pay. Another drawback of the indicator is that it does not specify the source (e.g. cost of specialty care, unemployment status) of the problems Americans face in paying medical bills. Fluctuations in the measure may result from characteristics outside of the system which have an effect on public opinions but have no direct relationship to the status of system components involved in personal health services delivery.

To avoid distorted interpretations, policymakers may want to compare this measure of the public's ***perception*** of how much they can pay for their medical bills to their actual ability to pay, as measured by out-of-pocket spending as a percentage of disposable income.

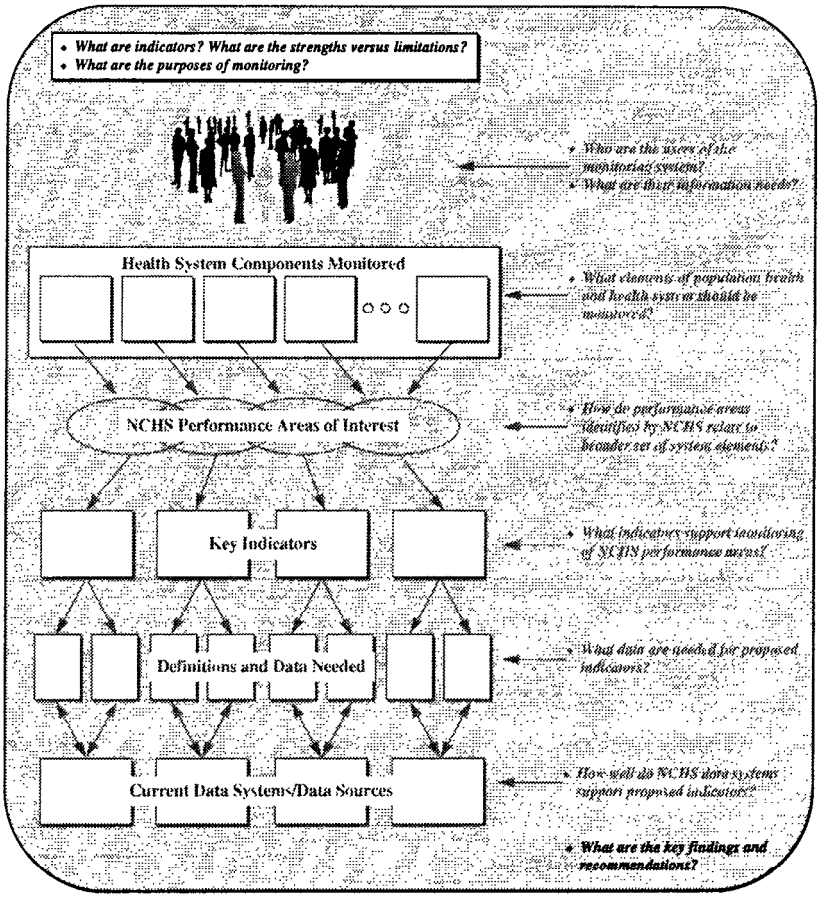
Data on this indicator is not currently collected by NCHS. However, the NHIS Supplement has proxy questions related to this indicator in the sections on Private Plan and Coverage Detail and Access. Various polling groups such as New York Times/CBS have

collected data on this measure, although the indicator appears without regularity and with inconsistent wordings in these public polls (see Appendix A).

CHAPTER 5:

RECOMMENDATIONS TO THE NCHS KEY INDICATOR WORKING GROUP FOR NEXT STEPS TO WARD IMPLEMENTATION OF A KEY INDICATOR MONITORING SYSTEM.

Evaluation of the adequacy and appropriateness of information collected in NCHS data systems to support a key indicator monitoring system has required some system analysis work as well as indicator development and evaluation. Broader systems issues have been addressed in parallel with work to respond to specific requirements for indicator assessment and data systems evaluation.



Though addressing very different levels of monitoring system implementation, both of these efforts are important as initial steps. Further work is needed both at the level of specific indicators on the "short list", and at the level of broader and more comprehensive system design and implementation.

Finding 1: The currently proposed primary indicators each represent important elements for monitoring, but do not provide a cohesive set of information. Levels of aggregation differ substantially across indicators, and coverage of different components of the overall system influencing health and health care are uneven. This is probably related to the current lack of a targeted users to be supported by the system.

While every indicator included in the short list of primary indicators represents an important area for monitoring, and addresses one or more of the nine areas identified for support, the set is not specified at the same degree of coverage. Some areas may currently offer too much detail, while others require more. For example, of the thirty-two indicators included in the short

list, three are related to infant health status, and four of the thirty-two address individual health risk behaviors. Although these areas of health monitoring are important, more aggregated composite indices would allow for inclusion of more indicators addressing important areas not covered in the list. By contrast, other indicators on the short list may need further disaggregation to support policymakers. An example would be "the percentage of population with health insurance coverage". To provide insight about the implications of this indicator, disaggregation would be needed by age, race, sex, employment status and industry, and health status.

Recommendation 1: Recognizing the need to limit the total number of key indicators, NCHS should further review the current list of indicators, after identifying a target user group or set of groups, and assess the set of indicators in terms of coherence and completeness of the picture provided, and the level of disaggregation that provides needed information and insight.

A review of the current list should also consider inclusion of new monitoring areas not captured well in the nine areas currently being used. Public health services, for example, were identified in external expert interviews as an important area to be included in monitoring. Public health is a key area of policymaking and government funding and service delivery. This includes a range of interventions and initiatives such as: water and food safety monitoring; health education; childhood immunizations; infectious disease control; health professions research and training; minority health promotion and effective disease prevention; access for rural and other underserved populations; and identification and promotion of more effective care delivery to vulnerable populations. These vulnerable populations include women and children in poverty, frail elderly, immigrants, HIV and AIDS victims, the homeless, persons with substance abuse problems, persons with mental illness, and others. These groups would likely be disproportionately affected by public program cuts, and these should be closely monitored. Public health activities also represent a natural extension of monitoring for NCHS as part of both the Center for Disease Control and Prevention, and the Public Health Service.

The appropriate set is likely to be very different for "generalist" versus "specialist" (e.g., users focused on health care finance, or focused on a particular subpopulation such as the elderly) perspective users, regardless of whether they play the role of policymaker, general public or researcher. The monitoring system framework presented in Chapter 3 can help to structure this evaluation. A useful next step would be to interview the universe of anticipated users at the Federal, State and perhaps Local level to clarify their monitoring needs generally, and need for these indicators, specifically.

Finding 2: Some of the proposed monitoring indicators require further methodological work to develop new composite indices, better measures, or standards for comparison to trigger user alerts.

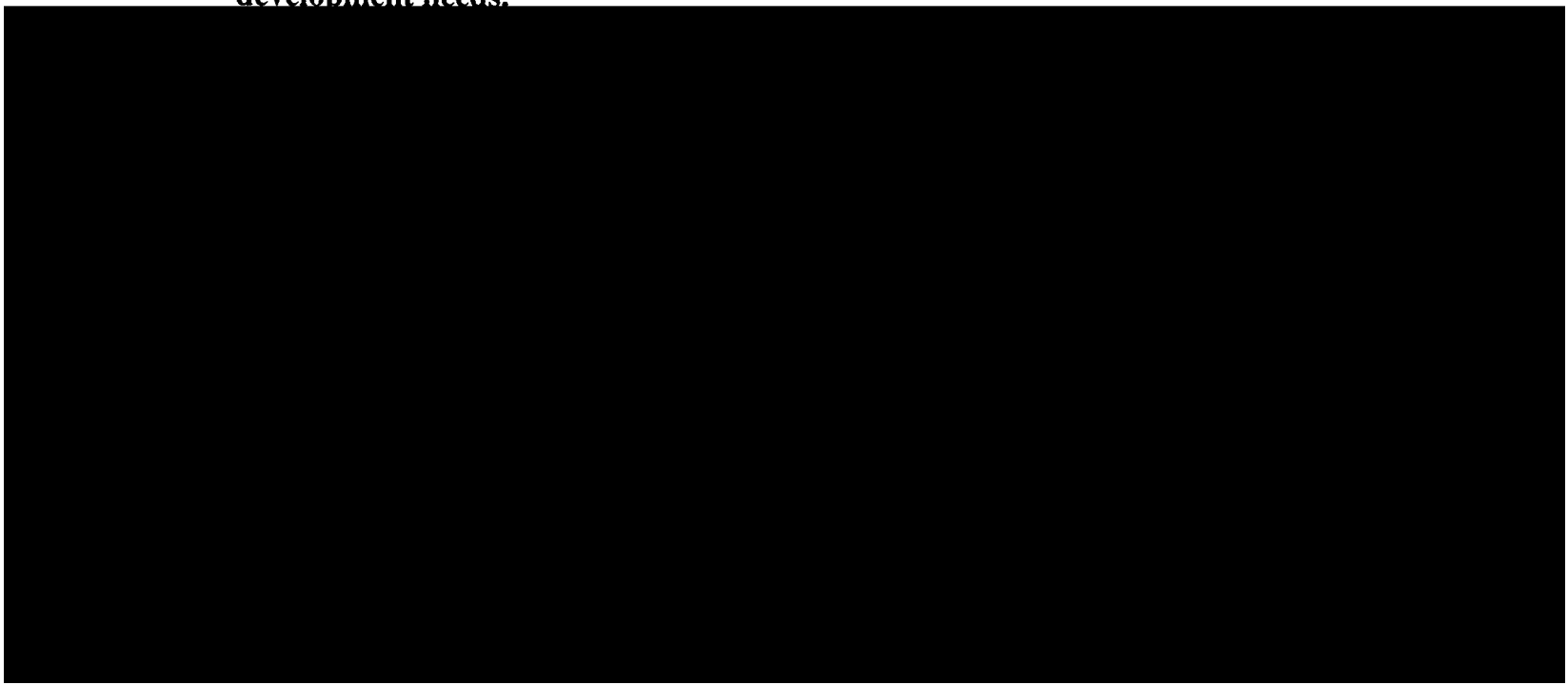
Some of the primary indicators included in the currently proposed list represent important composite measures to be tracked for the areas of interest, but are new indicators that need further specification. These include a composite measure of the mix of health care professionals available to deliver cost-effective care, the appropriate level of utilization for primary care and preventative care services, and standards of adequate insurance coverage.

For a utilization composite, definitions of appropriate care might address areas such as well-child care or pre-natal care. Composite utilization indicators could also be based on a set of marker conditions (e.g., selected chronic diseases) for which utilization is tracked over time to develop baseline measures.

More meaningful measures of insurance coverage require further work in defining a minimum versus "ideal" insurance benefit design to which individuals' coverage can be compared. In general, the extent of coverage and cost-sharing specified in benefits design affects the price of care faced by individuals and thus their level of utilization and total health spending by all payers. Trends in coverage should be monitored to better understand these dynamics, and the degree to which the population may be underinsured or potentially overinsured, in addition to rates of uninsured.

Another area for methodological work involves newly incorporated areas for which indicators must be developed. This could include indicators of environment-induced risk, and economy-related risk, and better measures of new technology impact such as technology-induced changes in the quality and outcomes of care, changes in utilization, insurance benefit design and health spending.

Recommendation 2: The NCHS KIWG should identify priority indicators and areas for further methodological development and collaborate with other government agencies, such as the DHHS AHCPR, to address these tool development needs.



requirements make systematic testing across states more difficult. Testing of this measure as an indicator of health services utilization and spending (past and predicted) has not yet been done.

In other instances the proposed indicators are new and sufficient data has not yet been collected to test their reliability. For example, the percentage of emergency room visits for non-urgent reasons is a measure proposed by the PHS and Congress within the past few years. Systematic data collection is just beginning. Its use as an indicator of access, utilization, expenditures, and quality is therefore largely untested. Other measures have been used, conceptually, but the methodology for developing the indicator may continue to change, For example, "years of healthy life" has been used by PHS since at least 1980, as an indicator of access and quality, but the method for calculating this measure is still being refined. Before widespread use of these indicators for health system monitoring can occur, more rigorous testing of their performance in this capacity is needed.

Recommendation 3: After targeted user support is identified and the list of monitoring indicators is reviewed, a more focused effort to test that set of indicators, especially those newly developed, should be undertaken. Revised indicator definitions and data needs based on that testing may result in a different evaluation of the adequacy of NCHS data systems.

Finding 4: The ability to disaggregate indicators by socioeconomic status and other variables indicating special health risks and care needs may require changes in NCHS survey question formulation and sampling strategy.

Many of the indicators identified for monitoring could be supported by data of the type collected in NCHS surveys. There is typically a question that can be identified in a current survey that would apply. But NCHS has indicated the desirability of disaggregating indicators by key demographic and health-related characteristics. This implies the need for increased sample size and survey design changes to increase sampling of certain subpopulations that have disproportionate levels of risk resulting from differences in demographic and environmental factors affecting health status, and disparities in access to appropriate care. NCHS has made such survey design changes in the past, for example, to address such issues for individuals with certain chronic diseases, including cancer and diabetes.

Recommendation 4: Changes in sampling implied by indicator data needs should be factored into future NCHS survey changes and overall sampling strategy. Allocating resources for increased scope in these areas must be weighed against reduced sampling efforts that may be needed to offset it in other areas, and the loss to current users of that information.

In fact, redesign efforts are currently under way to address some of these issues. The degree of geographic coverage, periodicity and level of permissable disaggregation are being redesigned. Nonetheless, there is a limit to the expansion of sample size and frequency that provides added value in terms of better insights. As discussed in Chapter 4, some special subpopulations will be too small to disaggregate even with a larger survey sample. Strategies for tracking changes in these groups will be better addressed through further development and use of supporting statistical methods, including data pooling strategies.

Finding 5: To be responsive to the need for a more comprehensive monitoring system was expressed in a number of the external expert interviews the NCHS "short list" of primary indicators should be logically connected to an expanded set that would meet the needs of that wider audience.

The planned Consensus process could address this issue by identifying intended users and uses of a broader monitoring system, the indicators and information to support their information needs, the data requirement implied and data sources available. In addition to system design specifications, the Consensus process should address the resource commitments required for development and ongoing maintenance of the monitoring system.

Recommendation 5: The specification of an expanded set should be given consideration now, to assure that the NCHS short list of primary indicators will be closely related, and cover all important elements treated in greater depth in a larger monitoring system. NCHS monitoring plans should be linked to a plan of staged design, implementation and coordination of existing data throughout DHHS, other federal, state, and local agencies and available private data sources.

To effectively address these issues the Consensus process should include representatives of agencies and other user groups who would either be users or suppliers of information for the system. The monitoring framework proposed in Chapter 3 can be used in structuring discussions for some of these issues.

At the federal, state and local level, respectively:

- What public agencies and private organizations could or should contribute to the problem-solving of the Consensus panel?
- What agencies or organizations work in or influence each of these areas now?
- What measures of structure, process and outcomes have they developed?
- What data resources do they currently maintain?

- Could identified data sources be used for this monitoring effort?

KEY MONITORING INDICATORS OF THE NATION'S HEALTH AND HEALTH CARE AND THEIR SUPPORT BY NCHS DATA SYSTEMS

APPENDICES A, B & C

PREPARED *FOR:*

OFFICE OF ANALYSIS, EPIDEMIOLOGY AND HEALTH PROMOTION
NATIONAL CENTER FOR HEALTH STATISTICS
CENTERS FOR DISEASE CONTROL

PREPARED BY:

LEWIN-VHI, INC.

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APRIL ***18, 1995***

APPENDIX A: ADDITIONAL ANALYSIS OF PROPOSED PRIMARY INDICATORS

Table A – Definition-Related Analysis
Part 1 – Meaning for Users
Part 2 – Definition of Indicator

Table B – Implementation-Related Analysis
Part 1 – Current Use and Testing
Part 2 – Current and Potential Data Sources

Table A – Definition-Related Analysis

Part 1– Meaning to Users

TABLE A – NCHS PRIMARY INDICATORS – DEFINITION – RELATED ANALYSIS

Indicator Description	Leading, Lagging, Coincident	What Does Increase Mean?	Actionable? A = Yes	Policy Action: P = Provide M = Mandate R = Regulate F = Finance
% pop who are smokers				
utilization	leading	Expect future increase in utilization of services for smoking-related illness (cancer, COPD, heart disease)	A	P,F-public hlth promtn efforts, eg. antismoking campaigns; R- tobacco ads; Tax tobacco
expenditures	leading	Expect future increase in health expenditures for smoking-related illness (cancer, COPD, heart disease)	A	P,F-publc hlth promtn efforts, eg. antismoking campaigns; R- tobacco ads
health status	leading	Health status of population measured can be expected to decrease in future	A	P,F-publc hlth promtn efforts, (eg. antismokng campaigns), services to underserved populations; R-tobacco ads; Tax tobacco
% pop. who are overweight				
utilization	coincident, leading	Expect more utilization of services for weight-related illness (e.g., heart disease), n near and long term. Note: this is not to say that total expenditures would also rise, since mortality also has an effect.	A	P (public health promotion efforts)
expenditures	coincident, leading	Expect more utilization of services for weight-related illness (e.g., heart disease), n near and long term. Vote: this is nor to say that total expenditures would also rise, since mortality also has an effect.	A	P (public health promotion efforts)
health status	leading, coincident	Health status of population measured has declined, can be expected to decrease in future (long-term effects of current weight problems)	A	R (food nutrition labels and advertising) P, F (public health promotion efforts, services to underserved populations

Primary areas of measurement are *italicized*

11/3/95

Indicator Description	Leading, Lagging, Coincident	What Does Increase Mean?	Actionable? A = Yes	Policy Action: P = Provide M = Mandate R = Regulate F = Finance
% pop/ with excessive alcohol consumption				
utilization	leading	Expect future increase in utilization of services for drinking-related illness and accidents, and the indirect negative effects of drinking on health	A	P,M,R,F (same as above, with focus on expenditures of entire pop.) ; Tax alcohol
expenditures	leading	Expect future increase in health expenditures for drinking-related illness and accidents, and the indirect negative effects of drinking on health	A	P,M,R,F (same as above, with focus on expenditures of entire pop.) ; Tax alcohol
health status	coincident, leading	Direct effects of excessive alcohol (accidents, fetal alc syndrome, cirrhosis, gen'l health status) and indirect effects (reduced income, increased violence and family stress, etc.) will decrease health status in near and long term	A	P,F (direct svs & promot'n /prevention efforts); M programs (e.g., w/in Medicaid, for pregnant women); R (alcohol labels); Tax alcohol
% of pop. reporting regular seat belt use				
utilization	leading	Utilization of emergency and acute care related to auto accidents can be expected to rise concurrentlv.	A	R (seat belt laws); P,M (education projects)
expenditures	leading	Acute care expenditures related to emergency and auto accidents can be expected to rise concurrently.	A	R (seat belt laws); P,M (education projects)
health status	coincident, leading	Can expect increases in injuries from auto accidents. Also indicates current attitudes toward prevention in general.	A	R (seat belt laws); P,M (education projects)
Infant mortality risk composite (perinatal mortality)				
access	lagging	Access to prenatal care, and to primary care more generally has declined;	A	P, F - prenatal outreach & educ.;
utilization	lagging (primary/prenatal care),	Utilization of primary care services has been sub-optimal	A?	P, F - prenatal outreach & educ.;
expenditures	lagging (primary/prenatal care)	Expenditures for primary care services have been suboptimal	A	P, F - prenatal outreach & educ.;

Primary areas of measurement *are italicized*

Indicator Description	Leading, Lagging, Coincident	What Does Increase Mean?	Actionable? A = Yes	Policy Action: P = Provide M = Mandate R = Regulate F = Finance
health status	lagging (status of mother, also proxy for entire pop or subpop)	Health status declined.	A	P, F - prenatal outreach & educ.
quality	lagging, coincident	Quality of care suffered for population in question	A	R - health plans (guidelines, standards)
Infant mortality risk composite (infant mortality)				
access	lagging	Access to prenatal care,and to primary care more generally has declined.	A	P, F - prenatal outreach & educ.;
utilization	lagging (primary/prenatal care)	Utilization of primary care services has been sub-optimal;	A	P, F - prenatal outreach & educ.;
expenditures	lagging (primary/prenatal care)	Expenditures for primary care services have been suboptimal	A	P, F - prenatal outreach & educ.;
health status	lagging (status of mother, proxy for population)	Health status declined.	A	P, F - prenatal outreach & educ.
quality	lagging, coincident	Quality of care suffered for population in question	A	R - health plans (guidelines, standards)
Infant mortality risk composite (low birth weight)				
access	lagging	Access to prenatal care,and to primary care more generally has declined.	A	P, F - prenatal outreach & educ.;

Primary **areas** of measurement are *italicized*

Indicator Description	Leading, Lagging, Coincident	What Does Increase Mean?	Actionable? A = Yes	Policy Action: P = Provide M = Mandate R = Regulate F = Finance
utilization	lagging (primary/prenatal care), coincident (neonatal ICU), leading (institutional care)	Utilization of primary care services has been sub-optimal; concurrent utilization of neonatal ICU should have increased, future institutional care for persons with congenital, defects can be expected to increase	A	P, F - prenatal outreach & educ.;
expenditures	lagging (primary/prenatal care), coincident (neonatal ICU), leading (institutional care)	Expenditures for primary care services have been suboptimal, concurrent expenditures for neonatal ICU should have increased; future expenditures for institutional care for persons with congenital defects and health care for other prematurity-related problems may increase	A	P, F - prenatal outreach & educ.;
health status	lagging (mother, proxy for population), possible coincident or leading (of infant)	Health status declined. Future health status of infant may be lower. (note: effects of technological advances are NOT clear)	A	P, F - prenatal outreach & educ.
quality	lagging, coincident	Quality of care suffered for population in question	A	R - health plans (guidelines, standards)
Mortality rates by age group, by SES				
access	lagging	Access decreased for population in question.	A	P, M, F - servcies to underserved populations
insurance (?)	lagging, coincident	Can show whether health status (as indicated by mortality rates) suffered due to insufficient coverage	A	M- coverage; R-insruance induustry
health status	lagging, coincident	Health status probably decreased for population in question (note: mortality and health status are related but not identical)	N	--
quality	lagging	Quality of care for consumers under particular system has declined.	A	R- health plans

Primary areas of measurement are italicized

Indicator Description	Leading, Lagging, Coincident	What Does Increase Mean?	Actionable? A = Yes	Policy Action: P = Provide M = Mandate R = Regulate F = Finance
Disability rate composite index				
access	lagging	Access to services declined for population in question.	A	P, M, F - services to persons with disabilities
utilization	leading, coincident	Future utilization for long term care are likely to increase; Can explain portion of observed rise in utilization for long term care	A	P, M, F - services to persons with disabilities; R - burgeoning long term care insurance market
expenditures	leading, coincident	Future expenditures for long term care are likely to increase; Can explain portion of observed rise in expenditures for long term care	A	P, M, F - services to persons with disabilities; R - burgeoning long term care insurance market
insurance	lagging, leading	(a) Expect increase in Medicare and Medicaid (i.e., principal 3rd prty payers of long term care) (b) If other factors are controlled for, can indicate that disability rate increases were related to non-coverage.	A	P, M, F - services to persons with disabilities; R - insurers; M- coverage
health status	lagging, coincident	Health status declined for population in question.	N	--
quality	lagging	Quality of care suffered under system in question, resulting in increased disability.	A	R- health plans
Adult screening rates for cancer, diabetes, hypertension (relative to age/sex appropriate tgt)				
access	coincident	Increased access for pop. of concern (i.e., more comprehensive care)	A	P.M,F - outreach and education; R- public programs (e.g., guidelines for Medicaid mngd care providers)
utilization	leading	Higher util. of preventive svcs implies lower utiliz of acute care in long run (more efficient care)	A	P.M,F - outreach and education; R- public programs (e.g., guidelines for Medicaid mngd care providers)

Primary areas of measurement are *italicized*

Indicator Description	Leading, Lagging, Coincident	What Does Increase Mean?	Actionable? A = Yes	Policy Action: P = Provide M = Mandate R = Regulate F = Finance
expenditures	leading	Higher expenditures for preventive svcs implies lower expenditures for acute care in long run (more efficient care)	A	P.M,F - outreach and education; R- public programs (e.g., guidelines for Medicaid mngd care providers)
health status	leading	higher health status in long run (more comprehensive care)	N	--
quality	coincident	More efficient care to members of plan type in question.	A	R- health plans
Rate of "avoidable" hospitalizations				
access	lagging, coincident	Decreased access to routine or fundamental preventive care or specialty care	A	P.M,F - outreach and education; R- public programs (e.g., guidelines for Medicaid mngd care providers)
utilization	lagging, coincident	Utilization of services (i.e., primary, preventive, etc) became less efficient	A	P.M,F - outreach and education; R- public programs (e.g., guidelines for Medicaid mngd care providers)
expenditures	lagging, coincident	Helps explain part of increase in acute care expenditures, total and by various sources (e.g., Medicare)	A	P.M,F - outreach and education; R- public programs (e.g., guidelines for Medicaid mngd care providers)
quality	lagging, coincident	Decreased quality of care under plan-type in question	A	R- health plans
% of emergency room visits for non-urgent reasons				
access	coincident	Decreased access to primary care	A	P,M,F-services
utilization	coincident	Less efficient use of health resources	A	P,M,F-services
expenditures	coincident	Less efficient use of health resources	A	P,M,F-services
insurance	coincident	Decreased access to primary care	A	P,M,F -insurance coverage for uninsurd; R-insurance industry
quality	coincident	Less efficient use of health resources	A	R -health plans

Primary areas of measurement are italicized

11/3/95

Indicator Description	Leading, Lagging, Coincident	What Does Increase Mean?	Actionable? A = Yes	Policy Action: P = Provide M = Mandate R = Regulate F = Finance
Years of healthy life		Increase in # of yrs of health life does not necessarily imply an increase in quality of life over the life span (indeed, unhealthy years may be growing with increasing life span). Proportion of healthy to unhealthy years provides this, but does not provide absolute measure of life span or # healthy life yrs. Both are needed for more complete picture.		
access	lagging	increased access to primary/preventive care; more educated consumers, possible decrease in risk behaviors that are non-system	A	P, M, F - increase services (particularly primary care), health promotion efforts/ health education campaigns that are culturally competent
health status	lagging	improved health status, i.e. better diet, exercise, health care that result in healthier living	A	R - service providers and delivery of culturally competent care, P, F-jobs for unemployed, equitable distribution of providers, insurance coverage, information on diet, exercise (health promotion)
quality	lagging	may mean that the quality of care delivered is improving so that people are staying healthier longer	A	P,M,F- health promotion efforts, access to timely care (esp. primary/ preventive) R - quality of service providers
Years of unhealthy life				
access	lagging	reduced access to primary/preventive care; less educated consumers, possible increase in risk behaviors that are non-system	A	P, M, F - increase services (particularly primary care), health promotion efforts/ health education campaigns that are culturally competent

Primary **areas of** measurement are *italicized*

Indicator Description	Leading, Lagging, Coincident	What Does Increase Mean?	Actionable? A = Yes	Policy Action: P = Provide M = Mandate R = Regulate F = Finance
health status	lagging	deteriorated health status, i.e. poor dietary and exercise habits that result in unhealthier living	A	R - service providers and delivery of culturally competent care, P, F-jobs for unemployed, equitable distribution of providers, insurance coverage, information on diet, exercise (health promotion)
quality	lagging	may mean that the quality of care delivered is deteriorating so that more people suffer from health problems due to a lack of appropriate care.	A	P,M,F- health promotion efforts, access to timely care (esp. primary/ preventive) R - quality of service providers
Context indicators:				
Composite score of environment-induced risk				
utilization	coincident, leading	increased risk index score may correspond to higher utilization rates for chronic care or emergent care	A	P (access to primary/ preventive care, information on pollution, toxins, etc.) R (safety standards for work and residences)
expenditures	coincident, leading	increased risk index may correspond to higher expenditures and increase costs that are not covered by insurance (e.g. home care?)	A	F (home care or other types of care that is not covered by insurance)
health status	coincident, leading	may correspond to deterioration in health status	A	P (information on occupational health hazards, preventive care)

Primary areas of measurement *are italicized*

TABLE A – NCHS PRIMARY INDICATORS: DEFINITION – RELATED ANALYSIS

Indicator Description	Leading, Lagging or Coincident	What Does Increase Mean?	Actionable? A = Yes	Policy Action P = Provide, M= Mandate, R = Regulate, F = Finance
'remature chronic lisease mortality: *Access to Care*	Lagging	4n increase in premature chronic disease mortality may signal that people have less access to appropriate care or practicing behavior that may pose a risk to health. "Access-related excess mortality" would indicate access, because it risk-adjusts.	A - ,but not specific to me dimension of access	M, R (Efforts to ban smoking, and other risky behaviors), P (Public health education and promotion efforts) R - # of specialists F - health centers in underserved areas
Health Status	Lagging	An increase in premature chronic disease mortality may be an indicator of a decrease in health status in the population (but really more an issue of access or quality)	4	R (Efforts to ban or regulate smoking, and other risky behaviors), P (Public health education efforts including risky behavior education for uninsured and Medicare recipients, Risk behavior cessation programs, Access to primary care providers)
Quality	Lagging	An increase in chronic disease mortality may indicate decreased access to providers or lower quality of care - if properly risk-adjusted.	A	P,F (Public health education efforts including education on risky behaviors, Improving quality care of care in hospitals and other facilities in areas with a high proportion of uninsured and Medicaid recipients); R treatment guidelines
Percentage of population with regular source of primary care: ***Access to Care***	Coincident	An increase in the percentage of the population with a regular source of primary care would indicate that more people have access to basic medical services.	A - but not specific	M (Mandating which services should be covered by Medicaid and Medicare, and who is eligible), P (Providing services and establishing clinics in areas that lack adequate health care services, Providing incentive for primary care physicians to practice in underserved areas), R (changes to Medicaid reimbursement policy)
Utilization	Coincident, (of primary care) leading (of acute care)	A high percentage of population with regular source of care would indicate an increase in access to care, and would also suggest that because the services are available, the utilization rate may also increase May attenuate utilization in long run (i.e., more primary care means less acute. Can also lend meaning to corresponding observed increases in utilization (i.e. "good "vs "bad" utilization) -- to get at this, measure must focus on porimary care and not just regular source of care.	A	P (Providing services and establishing clinics in areas that lack adequate health care services, Education on how to access the system, Insurance coverage for primary care).
Health Status	Coincident, leading	An increase in the number of individuals with access to primary care, would he likely to increase overall health status also	A	P (Providing services for individuals who lack access to primary care, Health education)

Primary areas of measurement are *italicized*.

Public Perception	Coincident	The increase in access to primary care providers can increase public approval of the health care system.	A	P (Providing services for individuals who lack access to primary care, Health education)
Out-of-pocket spending as a percentage of disposable income, acute care: **Access to Care**	Coincident	Indicates increased financial burden of health care; may suggest decreased **acces** in near term, as any addital costs become increasingly prohibitive.	A? Indicator not very specific- affected by prices, coasuption, wages, insurance coverage, size of deductibles or copays.	F, M, P -insurance coverage or other relief for **low-** income people, R (Regulate insurance premium costs and coverage for acute care services, hospital costs)
Expenditures	Coincident	Indicates higher ***opportunity*** costs of health care -- especially relevant for low-income persons. Suggests increased burden of health costs on people.	A	F, **P(Regulate** insurance premium costs and coverage **for** acute care services, hospital costs); needs-based programs
Insurance	Coincident	An increase in out-of-pocket spending can be indicative of a decrease in health insurance **benefits,** a lack of health insurance, or an increase in services that are not covered by health insurance.	A	F, P, R (HMO's, Hospitals, insurance companies; Regulate amount insurance company will spend on acute care services; Reimbursement system)
Public Perception	Coincident	Suggests increased burden of health care costs, can help explain changes in public opinion about medical costs. Informs policy makers about concerns of **consurmers;** public opinion more a political than policy tool.	A	F, P (information and surveys regarding insurance plan premiums and benefits)
Consumer Satisfaction	Coincident	Can help explain changes in consumer satisfaction -- people will be less satisfied with increased out-pocket expenditures. Informs policy makers about concerns of consumers.	A	P (Information and surveys regarding insurance plan premiums and **benefits)**
Out-of-pocket spending as a percentage of disposable income, long term care: **Access to Care**	Coincident	Indicates increased financial burden of health care; may suggest decreased access in near term, as any addital costs become increasingly prohibitive.	A	**F, M, P,** R (Regulate insurance premium costs and coverage for long-term care services, LTC hospital costs)
Expenditures	Coincident	Indicates higher ***opportunity*** costs of health care -- especially relevant for low-income persons. Suggests increased burden of health costs on people.	A	F, **P(Regulate** insurance premium costs and coverage for long-term care services, LTC hospital and nursing home costs)
Insurance	Coincident	An increase in spending on long-terms services indicates that insurance will not all or any of the personal costs of long term care. (i.e., current sources of coverage are not keeping pace with need for long-term care services.	A	F, P, R (HMO's, Nursing homes, insurance companies; Regulate amount insurance company will spend on long-term care services; Reimbursement system)

Primary areas of measurement are ***italicized.***

Public Perception	Coincident	**Suggests** increased burden of long term care costs, can **help** explain changes in public opinion about medical **costs**. Informs policy makers about concerns of **consurmers;** public opinion more a political than policy **tool**.	A	F, P (Information and surveys regarding insurance plan **premiums** and benefits)
Consumer Satisfaction	Coincident	**Can** help explain changes in consumer satisfaction -- **people** will be less satisfied with increased out-pocket **expenditures**. Informs policy makers about concerns of **consurmers**.	A	P (Information and surveys regarding insurance plan premiums and benefits)
Extent of covered services relative to set standard: **Access to Care**	Coincident	Increase in the number of covered services implies improved access.	A	R, P (Requirements for insurance companies, **HMO's,** etc. to enroll a certain proportion of Medicaid recipients, or individuals in underserved areas.)
Utilization	Coincident	Can help explain increases in utilization (utilization increases as more services are covered).	A	R, P (Requirements for insurance companies, HMO's, etc. to enroll a certain proportion of Medicaid recipients, or individuals in underserved areas)
Expenditures	Coincident	Personal expenditures decrease as coverage increases, while an insurance company may shift the costs to providers. Could help explain increases in total, aggregate expenditures (or possibly at least those for primary care)	A	P, F, R (Regulate insurance companies, HMO's, etc. , and cost of premiums; Regulate cost charged by providers and hospitals for services), M (Mandate amount of funding for Medicaid and Medicare)
Insurance	Coincident	Can indicate better access among a certain type of insurance (HMO, ffs...)	A	R,P (Regulate insurance companies, HMO's, etc. , and cost of premiums)
Quality	Leading, Coincident	An increase in health coverage relative to set standards is likely to result in better outcomes, although it is not clear whether or not the quality of care given would improve.	A	R, P (Regulate cost charged by providers and hospitals for services)
Public Perception	Coincident	Increaseed coverage would likely improve public perception of insurance system, their own coverage. Would help explain observed increase in public perception measures.	A	**R,P** (Regulate costs and types of services covered by insurance companies)
Consumer Satisfaction	**Coincident**	Increase in covered services is likely to increase consumer satisfaction. Would help explain observed increase in consumer satisfaction measures.	A	**R,P** (Regulate costs and types of services covered by insurance companies)
Percentage of population with health insurance coverage: **Access to Care**	**Coincident**	An increase in the number of people insured indicates increased access to care.	A	**M,P** (Mandate increase in Medicaid, change Medicaid eligibility requirements, provide universal coverage)

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Utilization	Coincident, leading	An increase in the percentage of the population insured is likely to increase rates in utilization for most services, and possibly decrease rates or emergency room use and other inappropriate or avoidable utilization.	A	M,P (Mandate increase in Medicaid, change Medicaid eligibility requirements, provide universal coverage)
Expenditures	**Coincident**	Total health expenditures are likely to increase; Out of pocket spending is likely to decrease.	A	M,R,P,F (Increase federal money allocated to Medicaid programs; Additional taxes to pay for universal coverage)
Insurance	Coincident	Increase in the proportion of the population with health insurance coverage will cause in increase in the number of individuals in private insurance companies, HMO's, etc..	A	R, P (Regulate costs of insurance company premiums (for affordability); Medicaid expansion)
Public Perception	Coincident, leading	As % of pop. with insurance increases, public perception of health care system is likely to improve -- can help explain observed changes in consumer satisfaction	A	P (Insurance company premiums)
Consumer Satisfaction	Coincident	An increase in % of pop. with insurance is likely to increase consumer satisfaction (as long as the quality of care stays constant) -- can help explain observed changes in consumer satisfaction	A	P (HMO's, insurance companies)
Newly enrolled in Medicaid: Access to Care	**Leading**	Increased access for those individuals who were previously uninsured.	A	M (Mandating Medicaid expansion), P (Provide facilities to serve **Medicaid** population)
Expenditures	**Leading**	An increase in the number of Medicaid beneficiaries would probable increase level of government spending on Medicaid programs.	A	M (Medicaid expenditures, total and proportion of total U.S. expenditures on health)
Insurance	Leading	Increase in Medicaid recipients may indicate fewer uninsured individuals.	A	R (Require insurance companies to cover a certain proportion of Medicaid recipients; Regulate insurance premium costs; employee mandates for health care **coverage)**
Distribution of population by primary source of coverage: Access to Care	Coincident	Depends. Increased reliance on public sources (for **<65** pop) indicates inability of people to pay for their own care.	A	**P, M** R (Require insurance companies to cover a certain proportion of Medicaid recipients)
Insurance	Coincident	An increase in health insurance coverage would probably affect certain locations where the number of uninsured had been high	A	R (Require insurance companies to cover a certain proportion of Medicaid recipients

Primary areas of measurement are *italicized.*

National health spending as a percentage of GDP: *Expenditures*	Coincident, Lagging	Health care is a growing portion of the economy, suggesting an opportunity cost in terms of spending in other areas (which some argue are more productive).	A	M, F (On a federal level, perhaps HCFA; expenditures on Medicare and Medicaid programs)
Public Perception	Coincident, Lagging	An increase of GDP spending would may cause the public to perceive an increase in medical costs overall. so they may not want to utilize services.	A	M (Price controls on hospitals, providers, limit on costs of insurance premiums)
Utilization of primary services [relative to target levels): **Access to Care**	Coincident	An increase in utilization suggests an increase in access to services and facilities	A	P (Regulate number of primary care physicians in underserved areas)
Utilization	Coincident	Primary care utilization increasing . May suggest higher "good" utilization levels, which may imply more cost-effective care.	A	P (Allocate funding for additional medical facilities in underserved areas; local transportation to clinics)
Insurance	Coincident	Increase utilization may result from expanded health insurance coverage. Some types of insurance may offer better access (see access).	A	R (Regulate insurance premium costs)
Health Status	Coincident, leading	In increase in utilization may indicate improved health status now and in future. Note that if risk-factors and reasons for visits not controlled for, higher utilization could indicate worse health, not better.	A	P (Increase number of primary care physicians) R
Quality	Coincident	May suggest higher "good" utilization levels, which would imply more efficient, better quality care.	A	P (HMO's, physicians, etc.)
Utilization of preventive services (relative to target levels): **Access to Care**	Coincident	An increase in utilization suggests an increase in access to services and facilities	A	P (Preventive care education and outreach)
Utilization	Coincident	Preventive care utilization increasing May suggest more cost-effective care.	A	P,R (Funding for government-run preventive care programs)
Insurance	Coincident, leading	Increase utilization may result from expanded health insurance coverage	A	R (Funding for government-run preventive care programs)
Health Status	Coincident leading	In increase in utilization would prohahly improve health status	A	P (Education and outreach; Funding for government-run preventive care program)
Quality	Coincident	May suggest more cost effective. better quality care.	A	P (HMO's, physicians, etc.), R

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Mix of available health professional relative to a "best practice" standard: ***Access to Care***	Coincident	An increase in number of a particular type of provider may indicate increased access to that type of provider.	A	P (Incentives to help increase the number of **providers-** especially primary care physicians- in underserved areas. For example: the National health service corps; Limit the number of specialists who can practice)
Utilization	Coincident, leading	Increase of available and accessible providers of a particular type will likely increase utilization of that type of provider. Increased proportion of primary care providers would signal an increase in primary care utilization, and may suggest more efficient utilization of services.	A	P (Education- how to access primary care services)
Expenditures	Coincident, leading	**Increased** utilization means an increase in health expenditures. Increased proportion of primary care providers would signal an increase in primary care utilization, and may suggest more efficient utilization of services.	A	P (Funding for preventive care programs; Financial incentives for primary care physicians)
Quality	Coincident, leading	Quality of delivery system improved.	A	P (Provide better care to underserved areas)
Consumer Satisfaction	Coincident	In increase in the number of physicians is likely to increase consumer satisfaction, as people may have more providers to choose from. Therefor, indicator can inform interpretation of consumer satisfaction **indiactors**.	A	P (Provide better care to underserved areas)
Rate of pharmaceutical and other technological innovation: **Utilization**	Leading	An increase in medical technologies will likely to increase utilization, because new services would be made available.	A	R (FDA; Regulate the number of new patents for prescription drugs and medical devices; Limit spending on research activities)
Expenditures	Leading	An increase in the rate of innovation will probably increase expenditures. Initially, the costs of new technology will be high to cover the costs of research and development of the product.	A	R (FDA; Regulate the number of new patents for prescription drugs and medical devices; Limit spending on research activities)
Quality	Leading	An increase in innovation will probably increase the quality of medical care.	A	R (Development of standards and regulation of new drugs and therapies; Strict guidelines and requirements for approving new drugs and devices)
Public Perception	Coincident, leading	An increase in innovations may improve the **public's** perception **if they view the innovations as progress.**	A	R (Access and affordability of new treatments)

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Consumer Satisfaction	Coincident, leading	An increase in the rate of innovations will increase consumer satisfaction if the innovations represent an improvement to previous methods.	A	R (Access and affordability of new treatments)
Hospital patient mortality rate by age group: **Access to Care**	Lagging	In increase in inpatient mortality may be a result of decreased access to care (i.e., indicates possible poor use of primary care -- must risk adjust)	A	**P** (Quality of care in acute care hospitals; Preventive medicine and education)
Utilization	Lagging	In increase in hospital mortality may represent a decrease in utilization of preventive and primary care services (must risk-adjust, relationship still tenuous)	A	**P** (Provision of proper primary care and preventalive services in underserved areas, areas with a high proportion of uninsured, and **high** number of people practicing risky behaviors)
Health Status	Lagging	Increased hospital mortality may indicate poorer health status, but not very clear -- mortality says nothing about **quality** of life; decreased mortality could actually indicate increased morbidity	A	**P** (Acute care hospitals, Access preventive medicine)
Quality	Lagging	Poorer quality.	A	P (Quality of care in an acute care hospital)
Consumer **Satisfaction**	Coincident	Increase in hospital mortality (or knowledge of an increase in hospital mortality) will probably lower consumer satisfaction.	A	**P** (Quality of care in an acute care hospital)
CONTEXT INDICATOR: Newly **unemployed/ FT employed:** **Access to Care**	Coincident, leading	An increase in the proportion of newly unemployed will decrease access to care, since there would probably be a decrease in the number of people with health insurance	A	**P** (insurance, jobs)
Expendilures	Coincident, leading	An increase in the number of unemployed relative to the number of full time employees, would increase **out-of-**pocket spending for those unemployed individuals. It may increase government spending if these people become eligible for Medicaid.	A	R (Medicaid)
Insurance	Coincident, leading	Increased in unemployed would decrease the number of employees covered by their employers, and would increase the number of uninsured.	A	**P** (insurance)
Health Status	Coincident, leading	An increase in the proportion of unemployed would probably decrease health status in this group, if health coverage was also lost.		**P** (improve access to care)

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C.I.: Newly eligible for Medicare: Access to Care	Coincident, leading	Indicates increase in number of people relying on public sources of coverage for their access to medical care.	A	**M, P (HCFA)**
Expenditures	Coincident, leading	Government expenditures on Medicare would increase if the number of beneficiaries increased (unless Medicare program spending was capped or cut). Demographic projections are used to estimate future Medicare expenditures.	A	M, R, F (HCFA)
Insurance	Coincident	Government expenditures on Medicare would increase if the number of beneficiaries increased (unless Medicare program spending was capped or cut). Demographic projections are used to estimate future Medicare expenditures.	A	**M,R, F (HCFA)**

Primary areas of measurement are *italicized.*

TABLE A – NCHS PRIMARY INDICATORS : DEFINITION – RELATED ANALYSIS

Indicator Description	Leading, Lagging or Coincident	What Does Increase Mean?	Actionable? A = Yes	Policy Action P = Provide, M = Mandate, R = Regulate, F = Finance
Consumer confidence that if they or member of their family became ill, they would receive appropriate care		• signals a perceived improvement in parts of the health system but does not specify an actual change or the significance of change in any particular aspect (e.g. access) • related to increased confidence in physicians and other providers, insurance companies, and/or pharmaceuticals		
Access	leading	Predicts improved acceptability (and perhaps improved availability and affordability) of care provided by health system in future. Perceived improvement may be minimal, as access is only one variable in the determination of "appropriate" care. Actual improvement may not exist.	A	P (access to primary, specialty, technologically appropriate care -- e.g. build new facilities, recruit GPs, arrange transportation) M (universal coverage so that financial access barriers reduced, single national plan, employer mandate with public program for nonworkers, require individuals to purchase private policies) R (referrals to primary, specialty doctors--e.g. via case managers; use of technological interventions; service area coverage; utilization of care units; managed care incentives given to physicians to reduce LOS, etc.) F (tuition for students to be GPs, marketing to educate consumers on health and "appropriate" care, tax breaks to encourage provider/facilities to provide service in needy areas, incentives for private purchase of insurance, reduce payments to physicians, hospitals, and insurance companies and use future savings to cover costs of uninsured, guarantee access to insurance)

Quality	leading	Predicts perceived improvement in quality of care that will be received through health care system in the future. Perceived improvement may be minimal, as quality is only one variable in the determination of "appropriate" care. Actual improvement may not exist. Note, consumer confidence in the quality of care may differ from the opinions of health clinicians and professionals.	A	**P** (sensitivity to psychosocial issues, cultural **competency, and** foreign language proficiency training for providers; infrastructure to improve customer service -- e.g. telephone hotline for information, etc.; provide or require continuing education classes for providers on latest advances in medicine) M (new accreditation standards with consumer input) R (wait times, physician practice according to established clinical guidelines)
Public Perception	leading	Signals public approval of direction health system is going.	A	P (information, e.g. advertisements, educational brochures/report cards, and doctor referral lines for providers and purchasers)
Consumer Satisfaction	leading	May influence consumers to rate higher satisfaction with their health care and plan.	A	**P** (information, e.g. advertisements, educational brochures/report cards for providers and purchasers)
Percentageof population who feel that US is spending ton much on health care		Signal that the public believes that medical expenditures are too high. May indicate that there are actual problems with system costs, e.g. rising costs in health care for all sectors. Symptomatic rather than causal (i.e. measures a perception about the amount of spending vs. spending per se).		
Expenditures	coincident, leading	Signals public disapproval of current national or individual health care budget. May signal policy makers to try to reduce health expenditures.	A	T (income tax for those **<$25,000,** liquor and **cigs,** payroll tax on employees, income tax for those **>$50000,** hospital charges, MD fees, insurers, health insurance benefits, employers, national sates tax, higher Medicare fee for upper-income elderly) P (replace Medicaid with another plan for nonworkers or fold it into a single plan, tax credits for purchase of private insurance) R (amounts of copay and deductibles, use of high technology interventions for complicated diseases, Medicaid and Medicare payments, referrals to specialty care, e/r utilization, competition **b/w** hplans, reduced regulation, yearly limits on total private and govt. spending for all health care -- global cap, managed competition, price setting, **find** and prosecute doctors and patients who have committed fraud)

Insurance	coincident, leading	Part of the public's disapproval of the amount spent on health care may be a function of the insurance structure (i.e. feel that insurance characteristics are cause of high expenditures). An increase means that disfavor with the insurance system may have occurred, although it does not mean there is an actual "problem" with insurance. A change in this indicator may move in sync with change in insurance structure (e.g. higher deductible). May also signal insurers to try to cut costs, as an increase would indicate that their beneficiaries are unhappy with medical payments.	A	R (amounts of copay and deductibles, coverage for expensive/ experimental interventions, underwriters to prevent adverse selection)
Public Perception	coincident, leading	Indicates public disapproval with current levels of US health expenditures. If tracked over time, may affect perceptions of level of spending in the future (e.g. if this increase is less than the increase last year, it may lead to improved overall approval ratings of system)/	A	P (information/ marketing about: cost savings, plan or provider performance report cards, actual vs. projected costs, achievement of goals -- e.g. HP2000 -- relative to cost with international comparisons -- with attention to data consistency and validity)
Consumer Satisfaction	coincident, leading	May influence consumers to rate lower satisfaction with current health plan. May influence consumers to switch to a plan that costs less [also, assuming that government spending in fact increased, costs would increase overall so that health plan premiums and other costs would likely increase]	A	P (information/ marketing about costs savings, education about actual vs. projected costs, report cards with satisfaction ratings for access, quality, costs, plan financing arrangements)
Percentage of Americans who had problems paying medical bills last year		Signals a general problem with costs in the health care system.		

Expenditures	l a g g i n g	Directly shows that Americans considered their medical bills in the past year to be a burden. An increase means that more Americans are having problems with health care bills. There is gray area in that different attitudes about affordability may exist, but the indicator probably gives a better measure than , for example, the previous indicator **about** a feeling that spending is too high. The public may consider spending to be exorbitant, but this is not the same as reporting personal problems with making payments.	A	M (global budgets for providers, research funding caps, price controls) R (use of technological interventions, malpractice lawsuits, number **of** doctors -- e.g. United Kingdom) F (assistance to needy populations, e.g. uninsured)
Insurance	lagging	May be related to changes in insurance coverage that occurred in the past year, e.g. increasing costs of premiums, less services covered, more stringent methods for accepting who to insure. May be related to number of newly unemployed. May he related to number of uninsured.	A	P (information/ marketing comparing plan costs to **allow** consumers to purchase appropriate coverage, standard benefits package of comprehensive coverage with appropriate -- for different income levels -- and predictable out-of-pocket outlays)
				M (universal coverage or other ways of providing health care to the uninsured population. Also, look at number of Medicaid eligible people.) R (amounts of copay, deductibles, premiums, services covered **by plan)** F (new form of comprehensive benefits package with broader definition of medical and medical-related expenses than traditional policies)
Public Perception	lagging, leading	May be related to how the public rated the health system in the past year (e.g. might be linked to disapproval/approval ratings). May influence how public rates health system in future (i.e. uses this measurement as baseline for comparison).	A	P (comparative information on previous years ratings)

Consumer Satisfaction	lagging, leading	May be related IO how consumers evaluate heir health plan during the past year. May nfluence how consumers rate their health plan in the future (e.g. shape their expectations).	A	P (comparative information on previous years ratings, marketing about levels of satisfaction relative to costs -- e.g. report cards)
Percentage of population willing to recommend their current health plan to friends and family		Consumer satisfaction is the only area where change in this indicator has a direct or ntuitive impact (i.e. a change in the ndicator means a change in satisfaction with .he plan). While the other areas listed may oe related, the indicator may or may not say anything meaningful about a change in those ueas.		
Access	coincident, leading	Signals that plan members might be satisfied with the availability, acceptability, and affordability of care offered by their plan (could be type of care, level of care). If opinions are tracked over time, may lead to Improvements in actual access to care (e.g. this year's increase may follow a policy change -- the reference point. Consumer approval indicated by this measure may lead plans to implement similar types of changes in policy as part of continuous quality improvement efforts).	A	P (access to primary, specialty, and technologically appropriate care, e.g. build new facilities, recruit GPs, arrange transportation to remote clinics) CQI (corporate goal setting, business planning, target setting, prioritize problem areas to help with operational improvements) M (comprehensive benefits plan) R (utilization of care units to monitor visits, wait time) F (universal coverage, tax incentives to encourage provider and facility openings in poor or remote areas, tuition for students to become GPs)
Expenditures	coincident, leading	Shows that plan members may be satisfied with the amount of money they spend to be in the health plan. May influence the level of expenditures they will find acceptable in the future regarding plan costs.	A	R (use of high technology interventions and specialty care, compare costs of health plans with the types of benefits they provide) CQI (corporate goal setting, business planning, target setting, prioritize problem areas to help with operational improvements)

Insurance	coincident, leading	Shows that plan members may be satisfied with the coverage and costs of their plan. May influence their choice of plans in the future. If tracked over time, may point out policy changes that lowered disenrollment and improved satisfaction, as indicated by willingness to recommend the plan.	A	F (the indicator would likely change if the amounts of copay, premium, deductible changed -- financial arrangements)
Quality	coincident, leading	Shows that plan members may be satisfied with the quality of service they are given by plan providers and representatives. If tracked over time, may point out policy changes that plan members like and that could be monitored for CQI efforts to improve quality.	A	P (satisfaction report cards for consumers to compare provider/ plan performance, provide comparative information of patient outcomes by type of coverage) R (accreditation standards with consumer input) **CQI** (corporate goal setting, business planning, target setting, prioritize problem areas to help with operational improvements)
Consumer Satisfaction	coincident, leading	Directly measures current level of satisfaction with health plan. May influence consumer expectations from their health plan and affect how they rate their plan in the future.	A	P (report cards, education on what constitutes quality care)

Percentage of population more satisfied with current plan than those available in past	For all of the areas listed below, the indicator could theoretically be leading (tenuous), coincident, and lagging. A reference point is inherent in the measure -- a comparison to last year's plan. The measure gives an indication of what the current level of satisfaction is that is predicated upon first making an evaluation of the plan the member belonged to in the past. Policy makers at various levels (within plan governance committees, feds, state, etc.) might also use this measure to look forward to the types of policy changes which could be implemented in the future with the approval of consumers (i.e. look at what current plan "did right" in terms of policy change to cause improvement and replicate these kinds of policies for CQI purposes.)	The indicator provides a direct measure of consumer satisfaction and public perception. The other areas are related, but an increase may not necessarily be meaningful in these areas when an increase in the indicator is observed.		
Access	coincident, leading (?), lagging	May signal that plan members perceive the care provided in the current plan to be better than plans available in the past in terms of care acceptability, availability, and affordability	A	P (access to primary, specialty, and technologically appropriate care, e.g. build new facilities, recruit GPs, arrange transportation to remote clinics, coverage via minimum benefits package, comprehensive benefits, benefits at average private policy or Medicare level; choice of provider) R (utilization of health units to monitor wait times, # visits) F (costs of current plan) CQI (corporate goal setting, business planning, target setting, prioritize problem areas to help with operational improvements)
Expenditures	coincident, leading (?), lagging	May signal that plan members perceive the level of expenditures required by their current plan be more desirable than what was required in the past.	A	R (use of high technology interventions and specialty care) F (costs of current plan)

				CQI (corporate goal setting, business planning, target setting, prioritize problem areas to help with operational improvements)
Insurance	coincident, leading (?), lagging	May signal that plan members perceive the coverage provided by this plan to be superior to the coverage offered by plans in the past. May be associated with costs of premiums.	A	P (information/ marketing comparing plan costs to allow consumers to purchase appropriate coverage) M (require private purchase of insurance with government subsidies, e.g. tax credits and deductions based on income) R (amounts of copay, deductibles, premiums, services covered by plan, voluntary or required membership in a health plan) F (comprehensive benefits package)
Quality	coincident, leading (?), lagging	May signal that plan members perceive the quality of care provided in the current plan to be superior to the quality of care provided in plans available in the past.	A	P (satisfaction report cards for consumers to compare provider/ plan performance) R (accreditation standards with consumer input) CQI (corporate goal setting, business planning, target setting, prioritize problem areas to help with operational improvements)
Public Perception	coincident, leading (?), lagging	Signals that plan members have a better opinion about their current plan compared to plans available in the past.	A	P (information about outcomes, member satisfaction)
Consumer Satisfaction	coincident, leading (?), lagging	Signals that the characteristics which distinguish the current plan from plans available in the past are making consumers feel more satisfied with their current plan.	A	P (report card results of patient satisfaction over time, marketing info about plan benefits now compared to past, a question hotline so that the plan can be responsive to member needs)

Measures of socio-economic factor risk (e.g., income)	If tracked over time using a frame of reference, these measures could serve as leading, lagging, and coincident indicators, depending on the specific indicators for which these measures provide a context to better define results. For example, a policy directed at improving quality, access and costs for low-income Hispanic elderly women could be reviewed 2 years later with a satisfaction measure that disaggregated its population to address the opinions of this particular group. The results would provide an understanding of the current level of this group's satisfaction . If leading or lagging satisfaction indicators were used, these socio economic risk factors could be used to evaluate what impact interventions related to these factors had on changing satisfaction in an area retrospectively or how they might influence satisfaction in the future.	An increase refers to a rise in the risk associated with these socioeconomic factors in relationship to other indicators that measure changes within the system. Policy interventions are designed to cause decreases in these measurements (i.e. lower the risks to health associated with these factors)	Action can be taken to reduce the risks associated with socioeconomic characteristics of a population.	
Access	leading, lagging, coincident	An increase may mean that individuals are at higher risk of not having acceptable, affordable, and available care. (e.g. a rise in risk associated with income means that lower-income persons may have reduced access to care).	A	P (initiatives to improve availability of care and resources for low income populations, health education and services that are culturally competent and offered in foreign languages, jobs and career training/ skill development so that low income groups can afford care, transportation to facilities/ providers, outreach to at-risk areas) F (tuition incentives so that med students from these poorer areas will return and practice in their hometowns, insurance coverage) M (comprehensive benefits package, presence of doctors and facilities within certain distance of at risk communities)

Utilization	leading, lagging, coincident	An increase may mean that individuals are at higher risk of having utilization rates that are not appropriate (e.g. a person may move to an area where there is discrimination against his or her race so that the individual is discouraged from participating in the health system when there is a real health need to address).	A	P (access to primary care, transportation, physicians and health education materials should accommodate patients who speak a different language, respect cultural values -- e.g. in the Hispanic community the family vs. the individual is central -- and respect the psychosocial burdens patients may have due to gender, race, etc.) M (a certain number of facilities based on provider distribution) R (accreditation standards for conditions and maintenance of health facilities) F (incentives to providers to practice in at-risk areas)
Expenditures	leading, lagging, coincident	May mean that expenditures will increase. (e.g. the government may have to finance care for more people if risks associated with income rise)	A	R (costs of Medicaid, Medicare, other government assisted programs/ benefits to populations with these risk factors, look at costs of care for minority or other at-risk populations, e.g. NHIS Supplemental Survey on American Indians)
Insurance	leading, lagging, coincident	May mean that individuals are at higher risk of not having appropriate insurance coverage (e.g. may not be able to afford insurance).	A	R (prevent adverse selection, promote use of community ratings) F (coverage to uninsured, assistance for populations with these risk factors who cannot afford care but are overqualified for Medicaid)
Health Status	leading, lagging, coincident	May decrease health status. (e.g. higher risk associated with income may mean that utilization is not appropriate, and people are thus getting sicker).	A	P (health education and promotion -- e.g. no smoking in public areas, gyms in offices--, access to care, infrastructure to support utilization e.g. transportation, nurse hotline, shelter and food for homeless, job training and employment so that poor can afford care) M (universal coverage, minimum benefits package) R (working conditions / occupational hazards, conditions of care facilities, compare health care outcomes for minorities) F (preventive care costs e.g. child immunizations)
Consumer Satisfaction	leading, lagging, coincident	May mean decrease in consumer satisfaction, as increased risks may inhibit participation in the system.	A	P (service and information about health plan, preventive care, health promotion that is sensitive to needs of population with these risk factors)

Part 2– Definition of Indicator

TABLE A – NCHS PRIMARY INDICATORS – DEFINITION – RELATED ANALYSIS

Indicator Description	Suggested Definition(s)	Part(s) of System Monitored	Value for: 1) Researchers 2) Policy Makers 3) Public
% pop who are smokers	% of pop. age 20+ who are smokers (smoker=person who has smoked 100+ cigarettes and currently smokes -HP2000)		
utilization	Above definition, all persons ; also by state	Hospital, outpatient, physicians, drugs, e/r	1-Y *2-Y* *3-Y*
expenditures	Above definition, all persons; also by state, type of plan. source of coverage	Hospital, outpatient, physicians, drugs, e/r	1-Y *2-Y* *3-Y*
health status	Above definition, by: - by state, for HS education, blacks, hispanics, reproductive aged women (subpops reported from BRFSS) - *OR*, males 20+ yrs, females 20+ yrs, people w/ HS education or less 20+ years, blue-collar workers 20+ yrs. military personnel, blacks 20+ yrs, hispanics 20+ yrs, Am Indian/Alaskan Natives, Southeast Asian males, females of reproductive age (18-44 yrs), pregnant females, females who use oral contraceptives (subpopulations listed in HP2000). - *OR*, for nation, by socioeconomic status, i.e., sex*race*age*income or education, if feasible (CHECK THIS)	non-system (i.e., behavior); health promotion efforts of PHS	I-Y *2-Y* *3-Y*
% pop. who are overweight	% >=120% of ideal body weight (midvalue for medium-frame person on 1959 Met. Life height/weight tables - BRFSS; OR, % w/ Body Mass Index >= 27.8 for men, 27.3 for women -NHANES)		
utilization	Above definition, all persons; also by state	Hospital, outpatient, physicians, drugs, e/r	1-Y *2-Y* *3-Y*
expenditures	Above definition, all persons; also by state	Hospital, outpatient, physicians, drugs, e/r	1-Y *2-Y* *3-Y*
health status	Above definition, by state, for low-income, blacks, hispanics, people w/HBP, men w/ HBP (subpops reported from BRFSS); - *OR*, by categories listed in HP 2000 (similar to BRFSS categories, but a bit more extensive) - *OR*, for nation, by socioeconomic status, i.e., sex*race*age*income or education, if feasible (CHECK THIS)	non-system (i.e., behavior); health promotion efforts of PHS	1-Y *2-Y* *3-Y*

Primary area.5 of measurement **are italicized**

Indicator Description	Suggested Definition(s)	Part(s) of System Monitored	Value for: 1) Researchers 2) Policy Makers 3) Public
% **pop/** with **excessive alcohol consumption**	% who had **60+** drinks of alcohol during past month **-BRFSS.**		
utilization	Above definition, all persons; also by state	Hospital, outpatient, physicians, drugs, **e/r**	I-Y *2-Y* *3-N*
expenditures	Above definition, all persons; also by state	Hospital, outpatient, physicians, drugs, e/r	*1-Y* *2-Y* *3-N*
health status	Above definition, for nation, by socioeconomic status, i.e., sex*race*age*income or education, if feasible (CHECK THIS) - OR, by age group, especially adolescents/young adults also **hv state**	non-system (i.e., behavior); health promotion efforts of PHS	1-Y *2-Y* **3-Y**
% of pop. reporting regular seat belt use	% persons **>=** age **18** reporting always using a safety belt - BRFSS (note: as a risk factor, should be reported as non-use instead of use).		
utilization	Above definition, all persons; also by state	Hospital, outpatient, physicians, drugs, e/r	**1-Y** *2-Y* *3-Y*
expenditures	Above definition, all persons; also by state	Hospital, outpatient, physicians, drugs, e/r	**1-Y** *2-Y* *3-Y*
health status	Above definition, for nation, by socioeconomic status, i.e., sex*race*age*income or education, if feasible (CHECK THIS) - OR, break out by age group, especially adolescent/young adults - OR break out by states with versus without seat belt laws	non-system (i.e., behavior); health promotion efforts of PHS	*I-Y* *2-Y* *5-Y*
Infant mortality risk composite (perinatal mortality)	There are 3 definitions of perinatal mortality used by NCHS. Def (1) usually used for **int'l** comparisons. More restrictive defs **(2&3)** most problematic for state comparisons. (1) infants **<7** days, fetal deaths after **28+** wks gestation (2) infants **<28** days, fetal deaths after **20+** wks gestation (3) infants **<7** days, fetal deaths after **20+** wks gestation		
access	for nation and states, - for following **subpops**: blacks, AI/AN, Puerto Ricans (HP 2000) - OR, for socioeconomic status (race*age*income or education); by insurance status: publicly insured, privately insured, uninsured; OR by type of insurance (e.g., HMO, fee-for-service) must control for as **many** risk factors as possible; also hv state	primary care especially prenatal care; **OB/GYN** public programs versus private insurance	-Y !-Y I-Y

Primary areas of measurement are italicized

Indicator Description	Suggested Definition(s)	Part(s) of System Monitored	Value for: 1) Researchers 2) Policy Makers 3) Public
utilization	for nation and states, total population	primary care especially prenatal care; OB/GYN,	1-Y 2-Y 3-N
expenditures	for nation and states, total population	primary care especially prenatal care; OB/GYN,	1-Y 2-Y 3-N
[redacted] *status*	for nation and states, - for following subpops: blacks, AI/AN, Puerto Ricans (HP 2000) - OR, for socioeconomic status (race*age*income or education); also by state	non-systemic (behavior); public health promotion efforts; targeted maternal & child health programs	1-Y 2-Y 3-Y
quality	must control for as many risk factors as possible; by type of plan (see insurance), or other factors (e.g., urban vs. rural)	primary care especially prenatal care; OB/GYN	1-N 2-Y 3-Y
Infant mortality risk composite (infant mortality)	Deaths of infants < 1 year old, per 1000 live births		
access	for nation and states, - for following subpops: blacks, AI/AN, Puerto Ricans (HP 2000) - OR, for socioeconomic status (race*age*income or education); by insurance status: publicly insured , privately insured, uninsured; must control for as many risk factors as possible; also by state	primary care especially prenatal care; OB/GYN public programs versus private insurance	1-Y 2-Y 3-Y
utilization	for nation and states, total population	primary care especially prenatal care; OB/GYN	1-Y 2-N 3-N
expenditures	for nation and states, total population	primary care especially prenatal care; OB/GYN	1-Y 2-N 3-N
health status	for nation and states, - for following subpops: blacks, AI/AN, Puerto Ricans (HP 2000) - OR, for socioeconomic status (race*age*income or education); also by state	non-systemic (behavior); public health promotion efforts; targeted maternal & child health programs	1-Y 2-Y 3-Y
quality	must control for as many risk factors as possible; by type of plan (see insurance), or other factors (e.g., urban vs. rural)	primary care especially prenatal care; OB/GYN	1-N 2-Y 3-Y

Primary areas of measurement are italicized

Indicator Description	Suggested Definition(s)	Part(s) of System Monitored	Value for: 1) Researchers 2) Policy Makers 3) Public
Infant mortality risk composite (low birth weight)	Number of low birth weight (<2500 grams) births per 1000 live births		
access	for nation and states, - for following subpops: blacks, AI/AN, Puerto Ricans (HP 2000) - OR, for socioeconomic status (race*age*income or education); by insurance status: publicly insured , privately insured, uninsured; must control for as many risk factors as possible also by state	primary care, especially prenatal care; OB/GYN public programs versus private insurance	1-Y 2-Y 3-Y
utilization	for nation and states, total population	primary care especially prenatal care; OB/GYN, neonatal intensive care, institutional care for persons with congenital defects	1-Y 2-Y 3-Y
expenditures	for nation and states, total population	primary care especially prenatal care; OB/GYN, neonatal intensive care, institutional care for persons with congenital defects	1-Y 2-Y 3-Y
health status	for nation and states, - for following subpops: blacks, AI/AN, Puerto Ricans (HP 2000) - OR, for socioeconomic status (race*age*income or education); also by state	non-systemic (behavior); public health promotion efforts; targeted maternal & child health programs	1-Y 2-Y 3-Y
quality	must control for as many risk factors as possible; by type of plan (see insurance), or other factors (e.g., urban vs. rural)	primary care especially prenatal care; OB/GYN care	1-N 2-Y 3-Y
Mortality rates by age group, by SES, by cause	Deaths per 1000 (all causes), by combinations of: -- sex -- age (<1, l-4,5-14, 15-25, 25-34, 35-44, 45-54, 55-64, 65-74, 75-84, 85+); or some appropriate grouping, such as infants, children, adolescents/young adults, adults, elderly) -- race/ethnicity (all races, white, black, Asian/Pacific Islander, Am. Indian/ Alaskan Native, Hispanic) -- (data on educational attainment not stable by race ; tabs by income not reported by NVSS?) (National Vital Statistics System) ;also by state, but not as detailed breakdowns? (check this)		

Primary areas of measurement are italicized

Indicator Description	Suggested Definition(s)	Part(s) of System Monitored	Value for: 1) Researchers 2) Policy Makers 3) Public
access	Above definition. Mortality rates controlling for non-access risk factors could suggest access-related excess mortality	If non-access risk factors are controlled for, indicator may monitor all parts related to access, e.g., delivery systems (access to primary care, specialists), insurance practices.	1-N 2-Y 3-Y
health status	Above definition.	No specific part of the system being monitored; persons include both consumers and non-consumers of health care.	1-Y 2-Y 3-Y -but can be misleading
quality	Above definition.	Providers of health care, managed care entities,	1-N 2-Y 3-Y
Disability rate composite index	% pop. with limitation of activity caused by chronic conditions (using definition from HP 2000), for: - total population Am. Indian/Alaskan Native blacks, low income people (annual family income < $10,000) from HP 2000)		
access	Above definition, by: - total population - Am. Indian/Alaskan Native - blacks, - low income people (annual family income < $10,000) (from HP 2000) OR, by SES (age*sex*race*income or education) (possible??)	If non-access risk factors are controlled for, indicator may monitor all parts related to access, e.g., delivery systems (access to primary care, specialists), insurance practices.	1-N 2-Y 3-Y
utilization	Above definition, for: - entire population and by age - broken out by type of plan, or SES (?)	Long-term care (demand for). Demand for all other services as well.	1-Y 2-Y 3-Y

Primary areas of measurement are italicized

11/3/95

Indicator Description	Suggested Definition(s)	Part(s) of System Monitored	Value for: 1) Researchers 2) Policy Makers 3) Public
expenditures	Above definition, for: - entire population ,and by age - broken out by type of plan, or SES (?)	Long-term care (demand for). Demand for all other services as well.	1-Y 2-Y 3-Y
insurance	Above definition, by type plan or coverage status	If non-insurance-related risk factors are controlled for (including other access problems), indicator will monitor insurance practices.	(a) (b) 1-Y,Y 2-Y,Y 3-N,Y
health status	Above definition, by: - total population - Am. Indian/Alaskan Native - blacks, - low income people (annual family income < $10,000) (from HP 2000) OR, by SES (age*sex*race*income or education) (possible)	**No** specific part of the system being monitored; persons include both consumers and non-consumers of health care.	1-Y 2-Y 3-Y
quality	Above definition, controlling for risk factors (does this make sense??)	Providers of health care, managed care entities,	1-N 2-Y 3-Y

Adult screening rates for cancer, diabetes, hypertension (relative to age/sex appropriate tgt)	• *cancer:* % persons receiving age/sex-appropriate screening for breast cancer (breast exam & mammogram); colon/rectal cancer (digital rectal, fecal occult blood, and/or(?) proctosigmoidoscopy); cervical cancer (pap test); oral(?); and skin(?) -- as recommended by U.S. Preventive Services Task Force
	• *diabetes:* % persons receiving age/sex-appropriate screening for diabetes (??)
	• *hypertension:*
	  • % persons receiving age/sex-appropriate screening for hypertension (i.e., >=18 yrs??), OR
	  • % of adults who have had BP checked w/in preceding 2 yrs by health professional or trained observer, and can state whether BP was normal or high (from HP 2000)
	  • Composite index (?): % persons receiving age/sex-appropriate screening for cancer, diabetes, and hypertension, as recommended by U.S. Preventive Services Task Force.		

access	- each of above by Socioeconomic status (age/sex/race/income or educ); - OR, by primary payer? (medicare, medicaid, private, etc.) - OR, (from HP2000) for : -- low income people (family income c $10,000) -- race/ethnicity (blacks, hispanic, Asian/PI, AI/AN -- people with disabilities OR, for Medicaid and Medicare populations, and uninsured	Preventive care/primary care.	1-Y 2-Y 3-Y

Primary areas of measurement are italicized

Indicator Description	Suggested Definition(s)	Part(s) of System Monitored	Value for: 1) Researchers 2) Policy Makers 3) Public
utilization	- for entire population; and by primary payer? (medicare, medicaid, private...)	delivery ɔƐ any type ɔƐ health care (leading), preventive/primary care (coincident),	1-∀ 2-∀ 3-Ǝ
expenditures	- for entire population, ənd by primary payer? (medicare, medicaid, private...)	delivery of any type of health care (leading), preventive/primary ɛɯɐ (lagging), health care financing (Medicare, private insurance...)	1-∀ 2-∀ 3-Ǝ
health status	- each ɔƐ əboɥɐ by Socioeconomic status (age/sex/race/income oɾ educ); - OR, (from HP2000) Ɛoɾ : -- low income people (family income < $10,000) -- race/ethnicity (blacks, hispanic, Asian/PI, ∧I/∧N -- people with disabilities OR, for Medicaid ənd Medicare populations, ənd uninsured	Non-system	1-Y 2-Y 3-Y
quality	by type ɔƐ plan (e.g., HMO, fee-for-service)	Specific types ɔƐ service delivery, e.g., managed care versus fee-for-service	1-∀ 2-Y 3-Ǝ
Rate of "avoidable" hospitalizations	(COMPOSITE?) # of ***Chronic conditions***: *All ages*: asthma, grand mal status, convulsions, hypoglycemia, *Children*: iron deficiency anemia *Adults*: chronic obstructive pulmonary disease, congestive heart failure, angina, diabetes (DKA/hyperosmolar coma, w/complic, w/o complic.), hypertension ***Acute conditions*:** bacterial pneumonia, skin graft with cellulitis, cellulitis, gastroenteritis, kidney/urinary infection, dehydration əs primary diagnosis *Children*: severe ENT infections -- Could break out by age group (children [e.g., < 5 yrs], adult, elderly[asthma, diabetes, hypertension]), using different set ɔƐ conditions Ɛoɾ each; -- Separate chronic ənd acute? Issues are different. Chronic=disease management, whereas acute=appropriate preventive/primary care.		
access	- by SES oɾ income	Service delivery (acute care, preventive care/primary care, specialist ɯɐ)	1-Y 2-Y 3-Y

Primary areas of measurement are italicized

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Indicator Description	Suggested Definition(s)	Part(s) of System Monitored	Value for: 1) Researchers 2) Policy Makers 3) Public
utilization	total, and by SES or income?	preventive/primary care or disease management	1-Y 2-Y 3-N
expenditures	total, and by SES or income?, or by type of payer?)	preventive/primary care or disease management; health care financing (Medicare, private insurance...)	I-Y 2-Y 3-N
quality	by type of plan (e.g., HMO, fee-for-service)	Specific types of service delivery, e.g., managed care versus fee-for-service	1-Y 2-Y 3-Y
% of emergency room visits for non-urgent reasons	% of emergency-room visits made for non-urgent reasons (OR, per capita # of non-urgent emergency room visits, which would separate effects of increased urgent e/r visits from decreased non-urgent e/r visits)		
access	by SES, or for specific vulnerable groups (e.g., uninsured)	Affordability of services, health behavior of individuals	1-Y 2-Y 3-Y
utilization	total, and by SES or income?	emergency room, efficiency of service delivery system	1-Y 2-Y 3-Y
expenditures	total, and by SES or income?	emergency room, efficiency of service delivery system	1-Y 2-Y 3-Y
insurance	by coverage status (insured vs. uninsured), plan type?	insuredness	1-Y 2-Y 3-Y
quality	by type of plan (HMO, fee-for service....)	Specific types of service delivery, e.g., managed care versus fee-for-service	1-Y 2-N 3-N

Primary areas of measurement are italicized

11/3/95

Indicator Description	Suggested Definition(s)	Part(s) of System Monitored	Value for: 1) Researchers 2) Policy Makers 3) Public
Years of healthy life	• Average number of years of a person's lifespan spent in "healthy" state (e.g. free of impairments by disability, disease...--see methodology in HP2000, combination of health status and mortality data) . or, express as a % of total life expectancy by the following subpops: - disadvantaged and high risk populations, by socioeconomic Status, i.e. sex*race*age*income*education (n.b., age groups could be infants, children, adolescents/young adults, adults, elderly, older elderly) - racial and ethnic minority populations - people with low income - people with disabilities - by type of plan coverage - by insurance status - by employment status		
access	- above, plus by geographic proximity to health provider (?) - must adjust for non-access related risk factors, such as neighborhood violence, nutrition, race, other behavior).	ongoing source of primary care, preventive services, health insurance	1-Y (risk-adjustment difficult) 2-Y 3-N
health status	same as above	non-system behavioral characteristics, preventive/primary care or disease management, health care financing arrangements, long term care, ambulatory care, all parts related to access	1-Y 2-Y 3-Y
quality	- by type of plan, insurance status - by SES must risk-adjust	specific types of service delivery, e.g. managed care vs. fee-for-service, long term care arrangements	1-N 2-N 3-Y

Primary areas of measurement are italicized

Indicator Description	Suggested Definition(s)	Part(s) of System Monitored	Value for: 1) Researchers 2) Policy Makers 3) Public
Years of unhealthy life	• Average number of years of a person's lifespan spent in "unhealthy" state (e.g. impairments by disability, disease...--see methodology in HP2000, combination of health status and mortality data) . or, express as a % of total life expectancy; Note that # yrs health life in combination with % of lifespan spent in healthy state together provide complete picture of health status -- "unhealthy life" is merely the difference or reciprocal by the following subpops: - disadvantaged and high risk populations, by socioeconomic status, i.e. sex*race*age*income*education (n.b., age groups could be infants, children, adolescents/young adults, adults, elderly, older elderly) - racial and ethnic minority populations - people with low income - people with disabilities - by type of plan coverage - by insurance status - by employment status		
access	- above, plus by geographic proximity to health provider (?) - must adjust for non-access related risk factors, such as neighborhood violence, nutrition, race, other behavior).	ongoing source of primary care, preventive services, health insurance	1-Y (risk-adjustment difficult) 2-Y 3-N
health status	same as above	non-system behavioral characteristics, preventive/primary care or disease management, health care financing arrangements, long term care, ambulatory care, all parts related to access	1-Y 2-Y 3-Y
quality	- by type of plan, insurance status - by SES must risk-adjust	specific types of service delivery, e.g. managed care vs. fee-for-service, long term care arrangements	1-N 2-N 3-Y
Context indicators:			

Primary areas of measurement are italicized

Indicator Description	Suggested Definition(s)	Part(s) of System Monitored	Value for: 1) Researchers 2) Policy Makers 3) Public
Composite score of environment-induced risk	Non-system risks to health status associated with geographic proximity to pollution (air, water, noise), and possibly also occupational health hazards, and place of residence (i.e. violence in neighborhoods). Possibly Measured by: . Outcomes: Mortality or health status controlling for factors affecting health status not related to environment (e.g. exercise, diet, geographical acceess to health services, age sex). . Environmental risk factors: Some kind of weighted score Subpops: for all areas, by place of residence, by type of job/place of work		(outcomes are more intuitive, but methology is difficult)
utilization	(use of health system due to medical complaints caused by environmental conditions at work or at home) - by SES - by age	preventive/primary care in disease management, long term care, e/r, factors external to health care system that affect utilization	1-Y **2-Y** **3-N**
expenditures	(cost to health system of care administered to treat medical conditions caused by environmental circumstances)	specific types of service delivery, e.g. managed care vs. fee-for-service, primary payer (medicaid/ medicare), factors external to health care system that affect expenditures	1-Y 2-Y 3-Y
health status	(effects of environmental conditions on health status, after controlling for system risk factors) - by age - by SES - occupation	health promotion efforts at community level, at place of employment, non-system behavioral risk factors (e.g. not letting children play near toxic waste sites), factors external to health care system that affect health status	1-Y 2-Y 3-Y

Primary areas of measurement are italicized

TABLE A – NCHS PRIMARY INDICATORS: DEFINITION – RELATED ANALYSIS

Indicator Description	Suggested Definition(s)	Part(s) of System Monitored	Value for: 1) Researchers 2) Policy makers 3) Public
Premature chronic disease mortality:	No. of premature deaths due to chronic disease. For this indicator, chronic diseases can be measured as the total of the death rates for cancer, heart disease, stroke and diabetes combined, per 100,000 people ages 25-64 (Stoto, 1992),		
Access to Care	Also see "access-related excess mortality, IOM access report. By SES, insurance status, region, or state	Availability of care, location or services relative to patient population, primary care; health behavior (in accessing/complying with care)	1) N 2) Y 3) N
Health Status	See above; by SES, region or state	same as access (Location or services, physical access) Also, outreach may bean important factor for educating people about behaviors that may aggravate effects of chronic disease.	1) Y 2) Y 3) Y
Quality	See above; by type of plan, plan, region, or SES	Quality of medical care, providers, outcomes; Primary care providers, specialty care providers, care management	1) N 2) Y 3) Y
Percentage of population with regular source of primary care:	% population w/ regular source of care (note: surveys cannot get at "primary care"; see NHIS 1977 suppl.).		
Access to Care	- by health status or disability status, or for certain subpopulations with chronic diseases (see IOM Access rpt, obj. (4); also by SES, region or state, insurance status, type of insurance (Medicare, Medicaid, etc).	Primary care physicians, clinics; insurance companies	1) Y 2) Y 3) Y
Utilization	Same as above; by state or region, primary type of coverage	Primary care physicians, location of services (accessibility), appropriate use of care	Coincident: 1) Y 2) N 3) Y Leading: 1)Y 2) Y 3)N
Health Status	See above; by health status, health outcomes, SES, region or state.	Availability of primary care providers, insurance companies, appropriate use of primary care	1) Y 2) Y 3) Y

Primary areas of measurement are *italicized*.

Public Perception	**See** above (Note: not a public perception indicator, but can affect public perception, and can inform the interpretation of a public perception measure of this item).	**Availability** of providers, accessibility to primary care providers	1) **N** 2) **Y** 3) **Y**
ht-of-pocket pending as a ercentage of lisposable income, acute care:	Out of pocket spending for acute care services (e.g. acute care hospitals) divided by total family disposable income. Expressed as median or mean proportion of disposable income (by income group), or as percentage of income group spending X% of disposable income or more. The latter can be used to indicate catastrophic medical costs if reference proportion is high enough.		
Access to Care	by SES, state/region, type of insurance	**Doctors**, hospitals, insurance, medical costs (prices), affordability, personal health care consumption	1) **Y** 2) **Y** 3) **Y**
Expenditures	Same as above, total and by state/region, type of insurance	nsurance companies, HMO's, hospitals, consumers **of** medical care, medical costs (prices)	1) **Y** 2) **Y** 3) **Y**
Insurance	Same as above, by type of insurance (Medicare, Medicaid, private, other) or type of plan (HMO, fee-for-service...) -- should at least control for different income levels	[nsurance companies	1) **Y** 2) **Y** 3) Y
Public Perception	**(Note:** not a public perception indicator, but can affect public perception, and can inform the interpretation of a public perception measure of this item).	**Providers** of acute care: doctors, hospitals, etc.	1) **Y** 2) **N** 3) **Y**
Consumer Satisfaction	In general, consumer satisfaction would logically be expected to decrease as personal expenses went up and quality of care remained the same. (Note: not a consumer satisfaction indicator, but can affect consumer satisfaction, and can inform the interpretation of a consumer satisfaction measure of this item). by type of plan, or type of insurance coverage	**Providers** of acute care: doctors, hospitals; HMO's, nsurance cos., etc., consumers of health care	1) **Y** 2) **Y** 3) **Y**
Out-of-pocket spending as a percentage of disposable income, long term care:	Total amount of-out-of pocket spending for long-term services, such as nursing home care, divided by disposable income. Expressed as median or mean proportion of disposable income (by income group), or as percentage of income group spending X% of disposable income or more. The latter can be used to indicate catastrophic medical costs if reference proportion is high enough.		
Access to Care	by age, **(<65, 65+), SES**	Physicians, LTC hospitals, nursing homes, home care. long-term care costs (prices), insurance	1) **Y** 2) **N** 3) Y
Expenditures	Same as above	Insurance companies, HMO's, LTC hospitals and facilities	1) **Y** 2) **Y** 3) **Y**
Insurance	See above, hy main insurance source (Medicare, Medicaid, private, uninsured, other)	Medicare, Medicaid, costs (prices) of long-term care, insurance companies	1) **Y** 2) **Y** 3) **Y**

Primary areas of measurement are *italicized*.

Public Perception	**See** above, by SES (Note: not a public perception indicator, but can affect public perception, and can inform the interpretation of a public perception measure of this item).	Providers of long term care: doctors, LTC hospitals, nursing homes, etc., disabled health care consumers	1) **Y** 2) **Y** 3) Y
Consumer Satisfaction	**See** above, by SES (Note: not a consumer satisfaction indicator, but can affect consumer satisfaction, and can inform the interpretation of a consumer satisfaction measure of this item).	Providers of long term care: doctors, LTC hospitals, nursing homes; HMO's, insurance cos., etc., disabled health care consumers	1) **Y** 2) **Y** 3) **Y**
Extent of covered services relative to set standard:	The amount of insurance coverage for basic services based on agreed upon standards of basic care. Basic services include primary care such as regular physicals as well as # of prenatal care visits, immunizations, etc.		
Access to Care	by SES, type of insurance (HMO, fee-for-service)	Insurance companies, Medicaid and Medicare, providers	1) **Y** 2) **N** 3) N
Utilization	per person utilization of services that are covered relative to appropriate level of use for that set of services By total, and by SES, type. of insurance (HMO, fee-for-service)	Insurance companies, Medicaid and Medicare, providers	1) **Y** 2) **Y** 3) **N**
Expenditures	total, and by SES, type of insurance (HMO, fee-for-service)	Insurance companies, Medicaid and Medicare	1) **Y** 2) **Y** 3) Y
Insurance	by SES, type of insurance (HMO, fee-for-service)	Insurance companies, Medicaid and Medicare regulators	1) **Y** 2) **Y** 3) **Y**
Quality	by SES, type of insurance (HMO, fee.-for-service)	Providers of basic services, also insurance companies	1) **Y** 2) **Y** 3) **Y**
Public Perception	by SES, type of insurance (HMO, fee-for-service)	Insurance Co., HMO's, etc.	1) **Y** 2) **Y** 3) Y
Consumer Satisfaction	by SES, type of insurance (HMO, fee-for-service)	Insurance companies, HMO's etc.	1) **Y** 2) **Y** 3) Y
Percentageof population with health insurance coverage:	% of persons who have health insurance coverage at a single point in time Or, for a certain length of time (e.g., certain percentage of the year)		
Access to Care	by SES, state/region, employment status, industry of employment	Insurance industry, public coverage, also general economy (employment), employers	1) **Y** 2) **Y** 3) **Y**
Utilization	by SES, state/region	Insurance regulators, insurance industry, public coverage, also general economy (employment), emplovers	1) **Y** 2) **Y** 3) **Y**

Primary areas of measurement are *italicized*.

Expenditures	by SES, income	Insurance regulators, insurance industry, public coverage, also general economy (employment), employers, health care consumers	1) Y 2) Y 3) Y
Insurance	by SES, state/region, employment status, industry of employment	Insurance companies, public coverage, also general economy (employment), employers, health care consumers	1) Y 2) Y 3) Y
Public Perception	See above; The availability of health insurance and an increase in services covered by health insurance, directly affects what and how many services an individual will utilize. [Note: not a public perception indicator, but can affect public perception, and can inform the interpretation of a public perception measure of this item).	Insurance companies, public coverage, also general economy (employment), employers, health care consumers, all providers	1) Y 2) Y 3) Y
Consumer Satisfaction	[Note: Not a consumer satisfaction indicator, but can affect consumer satisfaction, and can help explain observed changes in consumer satisfaction measures (if satisfaction measures include the uninsured), or, more likely, can be tracked alongside satisfaction mearues for a more complete picture of how well-served people are.	Insurance companies, public coverage, also general economy (employment), employers, health care consumers	1) Y 2) Y 3) Y
Newly enrolled in Medicaid:	The total number newly enrolled in Medicaid over the past year.		
Access to Care	by age (<65, 65+), SES	Primary care providers, Medicaid system (Medicaid providers, Medicaid recipients), generaly economic factors (e.g., unemployment)	1) Y 2) Y 3) N
Expenditures	See above.	Medicaid system	1) Y 2) Y 3) Y
Insurance	See above.	Medicaid system, insurance companies	1) Y 2) Y 3) Y
Distribution of population by primary source of coverage:	% of pop. w/ each source of insurance coverage as primary source		
Access to Care	By socioeconomic status, income level. Must adjust for age and SES in order to compare year by year.	Primary care physicians, location of primary care services Insurance coverage (all sources, public & private), employers.	1) Y 2) Y 3) Y
Insurance	See above, breakdown for different types of insurance (Medicare, Medicaid, etc.)	Primary care physicians, location of primary care services Insurance coverage (all sources, public & private), employers.	1) Y 2) Y 3) Y
National health spending as a percentage of GDP:	The amount of money the government spends on health care relative to other programs and services. Usually given as a total dollar amount or as a percentage of Gross Domestic Product		

Primary areas of measurement are *italicized*.

Expenditures		Government agencies, HCFA	1) Y 2) Y 3) Y
Public Perception	public's attitude towards government spending on health care. (Note: not a public perception indicator, but can affect public perception, and can inform the interpretation of a public perception measure of this item).	Government agencies, HCFA, entire health care industry, consumers, taxpayers.	1) Y 2) Y 3) Y
Utilization of primary services (relative to target levels):	% people receiving age-appropriate minimum number of primary care physician visits. (Requires standards for "minimum number" and definition of "primary care visits." May want to distinguish different types of physician visits, separating "good" from "bad" utilization). Could be tracked alongside indicators of inappropriate use of acute care (e.g., non-urgent e/r visits, better management of chronic disease) to better understand composition of this utilization (i.e., "good vs. "bad" utilization)		
Access to Care	by SES, insurance status, source of coverage (Medicaid, etc.), type of plan (HMO, ffs).	Primary care (regular physicals), prenatal care (regular prenatal checkups)	1) Y 2) Y 3) Y
Utilization	for total, an by state, SES	Primary care, prenatal care	1) Y 2) Y 3) Y
Insurance	See above, rates of ulilization by insurance coverage (ex. of Medicaid beneficiaries who receive regular check-ups)	Primary care, preventive care; Insurance companies (who determine which services to cover); Medicaid and Medicare providers	1) Y 2) Y 3) Y
Health Status	by SES , control for risk behavior	Non-system (behavior)	1) Y 2) Y 3) Y
Quality	See above by type of plan (HMO, ffs), or type of insumace (Medicare, Medicaid, etc.). Control for risk behavior.	Primary care, health plans.	1) Y 2) Y 3) Y
Utilization of preventive services (relative to target levels):	% people receiving age/sex appropriate screening and immunization, as determinedby experts (e.g., U.S. Preventive Services Task Force). Also could use number of services per 100,000. Example: mammograms, colon cancer screening, pap smears, etc.		
Access to Care	by SES, race, income, state/region	Primary/preventive care providers, availability of preventive services (mammograms, immunizations, prenatal care, etc.)	1) Y 2) Y 3) Y
Utilization	See above. total and by state, SES	Preventive care providers, preventive services mammograms, immunizations, prenatal care, etc..)	1) Y 2) Y 3) Y

Primary areas of measurement are *italicized*.

Insurance	See above; breakdown number of preventive services by types on insurance	Insurance companies; Preventive care providers, preventive services	1) Y 2) Y *3) Y*
Health Status	See above, by SES	Preventive care providers, non-system (behavior)	1) Y 2) Y *3) Y*
Quality	See above, by SES, type of plan	Preventive care physicians, health plans	1) Y 2) Y *3) Y*
Mix of available health professional relative to a "best ractice" standard:	Number of physicians (broken down by specialty and location of practice) E.g., proportion of primary care physicians to specialists, compared to "best practice" proportion (the ratio of these proportions).		
Access to Care	by state/region	Providers, medical education	1) Y 2) N *3)* Y
Utilization	See above.	Physicians (esp. primary care, including pediatricians, family and general medicine)	1) Y 2) N *3)* N
Expenditures	See above.	Physicians (esp. primary care, including pediatricians, family and general medicine)	1) Y 2) Y *3)* Y
Quality	See above. by state/region, by plan type	Physicians (esp. primary care, including pediatricians, family and general medicine)	1) Y 2) Y *3)* Y
Consumer Satisfaction	See above. (Note: not a consumer satisfaction indicator, but can affect consumer satisfaction, and can inform the interpretation of a consumer satisfaction measure of this item).	Physicians (esp. primary care, including pediatricians, family and general medicine)	1) Y 2) Y *3)* Y
Rate of pharmaceutical and other technological innovation:	Number of approvals and applications for new medical patents, devices, and uses for existing technology over a defined period of time.		
Utilization	See above.	Providers and regulators such as the FDA, pharmaceuticals, technology.	1) Y 2) Y 3) Y
Expenditures	See above.	Pharmaceuticals, technology	1) Y 2) Y 3) Y
Quality	See above	pharmaceuticals, technology	1) Y 2) Y *3)* Y

Primary areas of measurement are *italicized*.

Public Perception	See above (Note: not a public perception indicator, but can affect public perception, and can inform the interpretation of a public perception measure of this item).	pharmaceuticals, technology	1) N 2) Y *3) Y*
Consumer Satisfaction	See above (Note: not a consumer satisfaction indicator, but can affect consumer satisfaction, and can inform the interpretation of a consumer satisfaction measure of this item).	pharmaceuticals technology	1) N 2) Y *3)* Y
Hospital patient mortality rate by age group:	Inpatient deaths per 100,000(?) per year, broken down by age groups, e.g., **perinatal,** infant, child, adolescent/young adult, adult, elderly, very elderly		
Access to Care	Risk-adjust	Hospitals (inpatient), acute care, access to primary care, access to quality acute care (see quality)	1) Y 2) Y *3) Y*
Utilization	See above Must risk-adjust.	Hospitals (inpatient), acute care	1) Y (risk-adjustment difficult) 2) Y *3) Y*
Health Status	See above.	Hospitals (inpatient), acute care	1) Y 2) Y *3) Y*
Quality	Measure rates of inpatient outcomes (including death) Must risk-sdjust.	Hospitals	1) Y 2) Y *3) Y*
Consumer Satisfaction	See above; Rates of consumer satisfaction with inpatient hospital care. (Note: not a consumer satisfaction indicator, but can affect consumer satisfaction, and can inform the interpretation of a consumer satisfaction measure of this item).	Hospitals	1) Y 2) N *3)* N
CONTEXT INDICATOR: Newly unemployed/ FT employed:	Proportion of the number of individuals who recently became unemployed in relation to the total number of individuals employed full time.		
Access to Care	See above.	Insurance companies; federal government, Medicaid	1) Y 2) Y *3)* Y
Expenditures	See above	Federal government, Medicaid	1) Y 2) Y *3)* Y
Insurance	See above, rates of people who just recently lost their health insurance	Insurance companies	1) Y *2) Y* *3) Y*
Health Status	See above	Medicaid	1) Y 2) N *3)* Y

Primary areas of measurement are *italicized*.

C.I.: Newly eligible for Medicare:	Number of individuals who turned 65 in the past year, or number of individuals who became Medicare beneficiaries over the past year.; Number of Medicare enrollees per year: total enrollees and total benefit payments, By age, sex, and race; And by type of expenditure		
Access to Care	See above	HCFA, Medicare providers	1) Y 2) Y 3) N
Expenditures	See above	Medicare providers	1) Y 2) Y 3) Y
Insurance	See above	Medicare providers	1) Y 2) Y 3) Y

Primary areas of measurement are *italicized*

TABLE A – NCHS PRIMARY INDICATORS: DEFINITION – RELATED ANALYSIS

Indicator Description	Suggested Definition(s)	Part(s) of System Monitored	Value For 1. researchers 2. policymakers 3. public
Consumer confidence that if they or member of their family became ill, they would receive appropriate care	• A rating by surveyed health care consumers of how confident they are that if they or a member of their family became ill, they would receive appropriate care -- usually measured and compared periodically over time Subpopulations (can vary in size): . by length of plan enrollment and by number/ type of benefit options . by HMO/managed care (member or nonmember) or by insurance status (have, do not have coverage) **[Blendon 12/16/92]** . by employment status (employed full/p-t, unemployed-looking for work, other -- retired, student, homemaker, etc.) **[Blendon** 92 "Paying"] . persons who have had direct (inpatient or outpatient) / indirect experience (via friend/ family member) with health system by level of care (e.g. primary or specialty) and by type of provider (e.g. hospital, clinic) . by socioeconomic factors: race (white, non-hispanic; black, non-hispanic; hispanic or latino; other), income **($50,000+, $35,000-49999, $25000-34999, $15000-24999, <$15000)**, age (in y. **18-29, 30-49, 50-64, 65+)**, education (college grad, some college, HS grad, **<HS** grad) **[Blendon 12/16/92]** . Medicare/Medicaid persons . by consumer attitudes (e.g. willingness to use primary care doctors) . by household characteristics (e.g. number of people in family) . by demographic information (e.g. residence or geographical region)		
Access		availability of high technology, facilities, primary and specialty care, health education on what is "appropriate" care, insurance plan coverage and information on how to utilize benefits, physician choice	1. **yes** 2. yes 3. yes
Quality		provider technical **and** interpersonal skills, outcomes, conditions of facilities, parts monitored for access, acceptability of payment arrangements, customer service of plan, plan marketing	***1. yes*** 2. **yes** 3. yes
Public Perception		same as parts monitored for access, quality, and consumer satisfaction	1. yes 2. yes 3. yes
Consumer Satisfaction		same as parts monitored for access and quality	1. yes 2. yes 3. yes

Primary areas of measurement are *italicized*.

Percentage of population who feel that US is spending too much on health care	• Ratio of the part of the population who chose the descriptor "too much" when surveyed about the amount of U.S. health dollars spent by the government relative to the total number of people responding to the public opinion poll. · public opinion about the value of services and care received relative to actual expenditures Subpopulations (can vary in size): same as above.		
Expenditures		costs of care and treatment covered by plan, copayments and deductibles, costs by level or disease (e.g. primary or cancer), %GNP on health care, costs of uninsured population	1. **yes** 2. yes 3. yes
Insurance		**%** of community that is,uninsured, copay and deductibles, costs of care and treatment covered by plan, characteristics of insured, uninsured populations	1. **yes** 2. yes 3. yes
Public Perception		effectiveness of health education efforts to teach public what to expect from their care, **marketing efforts** of plans about their costs, consumer satisfaction with access, quality, costs, socioeconomic status of respondents	1. **yes** 2. yes 3. yes
Consumer Satisfaction		presence of financial barriers to care, effectiveness of plan marketing and health educators	1. **yes** 2. yes 3. yes
Percentageof Americans who had problems paying medical bills last year	• Part of surveyed population who reported difficulties in making medical payments during the last year · A measurement of an action that has already occurred and is being reported retroactively. Subpopulations (may vary in size): same as above		
Expenditures		costs of primary and specialty care by type of disease, costs of technological and pharmaceutical interventions, socioeconomic characteristics of respondents	1. **yes** 2. **yes** 3. yes
Insurance		premium, copays, and deductible costs, costs of care not covered by plan , plan coverage	1. **yes** 2. **yes** 3. yes
Public Perception		effectiveness of plan marketing and health education efforts, parts monitored for insurance, consumer satisfaction and exenditures	1. **yes** 2. **yes** 1. **yes**
Consumer Satisfaction		same as parts monitored above; also, monitors any financial barriers to appropriate and quality care	1. **yes** 2. **yes** 3. yes

Percentage of population willing to recommend their current health plan to friends and family	• Part of surveyed population who would recommend their current health plan to friends and family · A measurement which generally assesses the extent to which a member is satisfied with the access, costs, and quality of care offered in his/her benefits plan and specifically assesses a member's inclination to act upon that satisfaction. Subpopulations (can vary in size): same as above.		
[redacted]**ccess**		availability of technology, facilities, primary and specialty care, health education on what is "appropriate" care, insurance plan information on how to utilize benefits, ability to choose providers	1. yes 2. yes 3. yes
Expenditures		costs of primary and specialty care by type of disease, costs of technological and pharmaceutical interventions, socioeconomic characteristics of respondents	1. yes 2. yes 3. no
Insurance		premium, copays, and deductible costs, costs of care not covered by plan , plan coverage	1. yes 2. yes 3. yes
Quality		provider technical and interpersonal skills, outcomes, conditions of facilities, parts monitored for access, acceptability of payment arrangements, customer service of plan, plan marketing	1. yes 2. yes 3. yes
Consumer Satisfaction		same as parts monitored for above areas	1. yes 2. yes 3. yes
Percentage of population more satisfied with current plan than those available in past	· Part of surveyed population who feel more satisfied with their current plan than with plans they had in the past Subpopulations (can vary in size): same as above		
Access		availability of technology, facilities, primary and specialty care, health education on what is "appropriate" care, insurance plan information on how to utilize benefits	1. yes 2. yes 3. yes
Expenditures		costs of primary and specialty care by type of disease, costs of technological and pharmaceutical interventions, socioeconomic characteristics of respondents	I . yes 2. yes 3. no

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Insurance		premium, copays, and deductible costs, costs of care not covered by plan , plan coverage	**1. yes** **2. yes** **3. yes**
Quality		provider technical and interpersonal skills, outcomes, conditions of facilities, parts monitored for access, acceptability of payment arrangements, customer service of plan, plan marketing	**1. yes** 2. **yes** 3. **yes**
Public Perception		effectiveness of plan marketing and health education efforts, parts monitored for all other areas noted	1. **yes** **2. yes** **3. yes**
Consumer Satisfaction		same as parts monitored for above areas	**1. yes** **2. yes** **3. yes**
Measures of socio-economic factor risk (e.g., income)	• Characteristics in the community regarding a person's social and economic status which influence how healthy people are by restricting the extent to which individuals can participate in the health system. . Measures factors peripheral to the system which nevertheless are influential on how efficiently and effectively the system works . generally measures impact of income/education, race, gender,and age on the population's health status		
Access		availability of facilities, providers, and treatments, primary care (i.e., sensitivity of **GPs** to how patient's income level and race create psychosocial burden affecting patient's participation in health system), non-system community characteristics (e.g. unemployment)	**1. yes** 2. **yes** 3. no
Utilization		non-system, primary care (access to culturally and linguistically competent **GPs),** conditions of facilities, insurance coverage	**1. yes** 2. **yes** 3. no
Expenditures		Medicaid/Medicare costs, costs of uninsured, costs of various insurance plans, costs of avoidable care, costs of care by level and by disease (e.g. primary and heart disease)	I. **yes** 2. **yes** 3. no
Insurance		level of coverage and amounts of copays, deductibles, and premiums, non-system community characteristics	**1. yes** 2. **yes** 3. no

Primary areas of measurement are *italicized.*

Health Status		outcomes disaggregated by nonsystem community characteristics (e.g. race, income, sex, education), health promotion and prevention efforts of PHS and health plans	4. **yes** 5. **yes** 6. no
Consumer **Satisfaction**		same as parts monitored for all areas noted	1. **yes** 2. **yes** 3. no

Table B – Implementation-Related Analysis

Part 1– Current Use and Testing

TABLE B – NCHS PRIMARY INDICATORS – IMPLEMENTATION – RELATED ANALYSIS

Indicator Description	Current Use: Where/ Who	Current Use: How Long	Current Use: Purpose	Prior Testing Y/N	Possible Testing (brief description of statistical testing; (1) stat itself, (2) as an indicator)
% pop who are smokers	Federal and state gov'ts, to track progress, esp. toward HP 2000 goals. Widely used at national and state level by public health officials, lobbyists, etc.	Time series intermittently since 1976 (NHIS)	Used in research and public education, but most importantly to monitor progress toward smoking reduction targets. Active monitoring (e.g, former Surgeon General Koop)	Access-N Util-Y Exp-Y H.S.-Y	(1) Research on accuracy of estimate?? (check with NCHS) (2)Volumes of research on adverse health effects of smoking.
% pop. who are overweight	Federal and state gov'ts, to track progress, esp. toward HP 2000 goals.	Orig. survey in 1959 to obtain stats on medical and physical charctrstcs of U.S. pop..	Used in research (?), public health promotion efforts (?)	Access -N Util -Y Exp -Y H.S. -Y	(1) Research on accuracy of estimate?? (check with NCHS) (2)Volumes of research on adverse health effects of being overweight.
% pop/ with excessive alcohol consump-tion	Federal and state gov'ts, to track progress, esp. toward HP 2000 goals.	NHIS 1983, 85, 88. NHANES 1971-, BRFSS began 1984	Used in research (?), public health promotion efforts (?)	Access -N Util -Y Exp -Y H.S. -Y	(1) Research on accuracy of estimate?? (check with NCHS) (2) Volumes of research on adverse health effects of excessive drinking.
% of pop. reporting regular seat belt use	Federal and state gov'ts, to track progress, esp. toward HP 2000 goals. State health departments, state governments, to track compliance and effectiveness of seatbelt laws.	BRFSS since 1984. 29 individual states since 1981.	Used in research (?), public health promotion efforts (?)	Access-N Util-Y Exp-Y H.S. -Y	(1) Self-reporting an issue (i.e., in states with seat belt laws, people less likely to admit non-use). Compare reported seat belt use rates to auto accident injury & fatality rates, analyzing states w/ and without seat belt laws separately. (2) Volumes of literature on preventive value of seat belts.
Infant mortality risk composite (perinatal mortality)	National, state, and local governments	Since at least 1950. By race (b/w) since 1979.	Important measure used as indicator of health status of nation and access between groups. Also used for int'l comparisons.	Access -Y Util -N Exp -N Ins -N H.S. -Y	Three different definitions of perinatal mortality are used. State reporting requirements differ, making more narrow definitions problematic more unstable for comparison between states. Careful of definitional changes in analyses of time series data.

Indicator Description	Current Use			Prior Testing Y/N	Possible Testing (brief description of statistical testing: (1) stat itself, (2) as an indicator)
	Where/ Who	How Long	Purpose		
Infant mortality risk composite (infant mortality)	National, state, and local governments	Since at least 1950. By race (b/w) since 1979.	Important measure used as indicator of health status of nation and access between groups. Also used for int'l comparisons.	Access -Y Util -N Exp -N Ins -N H.S. -Y	Careful of definitional changes in analyses of time series data. Widely held as a seminal health indicator of a community, but not very specific, i.e, where is problem, what policy options are aoolicable?
Infant mortality risk composite (low birth weight)	National, state, and local governments	Since at least 1950. By race (b/w) since 1979.	Important measure used as indicator of health status of nation and access between groups.	Access -Y Util -Y Exp -Y Ins -N C.S. -Y	Careful of definitional changes in analyses of time series data.
Mortality rates by age group, by SES	PHS as part of national health objectives. State and local governments.	1933 for national data for all states.	Important measure used as indicator of health status of nation and access between groups.	Access -Y Ins -N H.S. -Y Qual -Y	In analyzing time series data, careful to adjust for epidemics and other non-trend effects. Risk-adjustment for quality measures diffucult, and also limited (because only looks at mortality and not morbidity or positive outcomes)
Disability rate composite index	PHS as part of national health objectives; congress and the president, to aid in making resource allocation decisions.	1969	Part of National Health Interview Survey, designed to collect data for wide n-ray of research questions on health behavior, status, use, and expenditures.	Access-N Util -Y Exp -Y Ins -Y H.S. -Y	Compare various estimates of disability to each other (i.e., NHANES versus NHIS)
Adult screening rates for cancer, diabetes, hypertension (relative to age/sex appropriate tgt)	PHS at national level. Just beginning to be collected at the plan level (e.g., Kaiser Northern California)	1969 Very recently at plan level.	Tracking progress toward national goals for screening for preventable diseases, which is an important area of potential savings.	Access -Y Util -Y Exp -Y H.S. -Y Qual -Y	Compare national surveys (NHIS, NHANES)
Rate of "avoidable" hospitalizations	PHS, congress. Part of two recent reports on access (IOM, RWJ).	1988-89	Compare groups (poor versus non-poor) to get at differences in access.	Access -Y Util -Y Exp -Y H.S. -Y	Prospective data collection. Some kind of retrospective analysis of NHIS data?
% of emergency room visits for non-urgent reasons	PHS, congress.	1994 (data collection just beginning)	Compare groups (poor versus non-poor) to get at differences in access.	Access -N Util -N Exp -N Qual - N	n/a
Years of healthy life	As part of Health People 2000 initiative of PHS	1980, but methodology still being refined	"Bottom line" health status measure, tracked as one of three broad goals of Healthy People 2000 initiative.	Access -Y H.S. -Y Qual - Y	n/a

Indicator Description	Current Use: Where/ Who	Current Use: How Long	Current Use: Purpose	Prior Testing Y/N	Possible Testing (brief description of statistical testing; (1) stat itself, (2) as an indicator)
Years of unhealthy life	As part of Health People 2000 initiative of PHS	1980, but methodology still being refined	"Bottom line" health status measure. tracked as one of three broad goals of Healthy People 2000 initiative.	Access-Y H.S. -Y Qual -Y	n/a
Context indicators:					
Composite score of environment-induced risk	No published composite score currently being tracked.	Dependscon data element used.	Track effects of environment, which can put other health status measures into context when tracked over time or compared between groups.	Access -N Util -N H.S. - N	Compare trends with measures of environmental safety. such as pollution, toxic waste exposure.

TABLE B – NCHS PRIMARY INDICATORS : IMPLEMENTATION – RELATED ANALYSIS

Indicator Description	Current Use			Prior Testing Y / N	Possible Testing (brief description of statistical testing)
	Where/ Who	How Long	Purpose		
Premature Chronic Disease Mortality	Healthy People 2000: Data from the National Vital Statistics System	993 (latest)	To determine years of potential life lost due to premature (under 65) mortality	Access: Y Health status: Y Quality: N	Compare premature to overall chronic disease nortality. Premature: defined as ages 25-64 (Stoto, 1992). Time trend analysis (changes in premature chronic disease mortality over time), Relative risk regressions.
Percentage of Population with regular source of **primary care**	Not available; Similar indicators include: # of primary care physicians, ambulatory physician contact, interval since last physician visit, and physician office visits (general and family practitioners)	1992 (for all data)	To determine access to basic care services	Access: N Utilization: Y Health status: N Public perception: N	Time trend analysis
Out-of-pocket spending as a percentageof disposable income, acute care	Health Care Financing Administration, Office of the Actuary, Office of National Health Statistics- Data on personal health expenditures	1960-1991	To determine personal health expenditures (broken down by hospital care and nursing home care)	Access: N Expenditures: Y Insurance: Y Public perc.: N Cons. Satis.: N	Self-reported NMES may have respondent biases. Compare out of pocket spending reported in self reports to estimates of personal out of pocket spending based on insurance company and Medicare/Medicaid expenditures.
Out-of-pocket spending as a percentage of disposable income, long term care	See above (data broken down into nursing home costs); Related indicator: Out of pocket expenditures of income devoted to health care expenses by persons 65 years of age and older.	1960-1991	To determine personal health expenditures (broken down by hospital care and nursing home care)	Access: N Expenditures: Y Insurance: Y Public perc.: N Cons. Satis.: N	Self-reported NMES may have respondent biases. Compare out of pocket spending reported in self reports to estimates of personal out of pocket spending based on insurance company and Medicare/Medicaid expenditures.
Extent of covered services relative to set standard	Not available	1992	To determine availability of coverage for basic services, also an indicator of access to services	Access: N Utilization: N Expenditures: N Insurance: N Quality: N Public perc.: N Cons. Satis.: N	Validity of definition for "set standard"
Percentage of population with health insurance coverage	Current Population Survey	1990	To determine the percentage of population who has insurance coverage for basic services	Access: N Util.: Y Expend.: Y Insur.: Y PP: Y cs: Y	Time trend analysis

Newly enrolled in Medicaid	Health Care Financing Administration	1992 (latest)	To determine the total amount of new Medicaid recipients	Access: N Exp.: Y Insur.: Y	Time trend analysis
Distribution of population by primary source of coverage	NCHS, 1992, and U.S. Department of Commerce, Bureau of the Census, Current Population survey, 199 1	1991, 1992 (latest)	Breakdown of insurance categories (private insurance, Medicaid, Medicare, uninsured, etc.)	Access: Y Insur: Y	Correlation between different types of coverage **and** population characteristics.
National health spending as a percentageof GDP	HCFA, data analyzed by the Organization for Economic Cooperation and Development	1991	Provides percentage of GDP spent on health-related activities	Exp.: Y PP: N	Time trend analysis
Utilization of primary services (relative to target levels)	Not available; Similar indicators: **#** of people in poor or fair health who have not contacted a physician in the past year and average **#** of annual physician contacts by those in poor/fair health	--	A measure of access and use of basic, primary services	Access: Y Util.: Y Ins.: Y HS: N **Qual.**: N	Compare outcomes to target levels, compare to baseline data (if available)
Utilization of preventive services (relative to target levels)	See above	--	A measure of access and use of basic, preventive services (such as immunizations, prenatal checkups, etc..)	Access: Y Util.: Y Insur.: Y HS: N Quality: N	Compare outcomes to target levels, compare to baseline data (if available)
Mix of available health professional relative to a "best practice" standard	Distribution and proportion of physicians by type of practice is available	--	Utilization rates and availability of primary care physicians (based on set standard of avg., physician visits per year and no. of physicians needed to provide care based on pop. density of the area)	Access: N Util.: N Exp.: N Quality: N CS: N	Compare to baseline (if available); Compare basic services, for example: immunization rates, with agreed upon target levels; Content validity- what is "best practice"?
Rate of pharmaceutical and other technological innovation	Not available; FDA may have	--	Number of new patents on medical technology per year	Util.: Y Exp.: Y	Time trend analysis
Hospital patient mortality rate by age group	Vital statistics records may keep data on number of inpatient deaths (look at location of death)	--	Rate of mortality for hospital inpatients	Access: N Util.: Y HS: N Quality: N CS: N	Time series; Compare hospital discharges (due to death) or hospital death records to Vital Statistics data (based on death certificates).

Context Indicator: Newly **unemployed/ FT employed**	Census Bureau, Current Population Survey	**1993**	Gives an estimate of the newly uninsured.		
Context Indicator: Newly eligible for Medicare	National Health Interview Survey; Health Care Financing Administration	1990; **1991- NHIS; HCFA-** through 1992	To forecast the increase in Medicare beneficiaries (important for determining Medicare budget)	**Y**	

TABLE B – NCHS PRIMARY INDICATORS: IMPLEMENTATION – RELATED ANALYSIS

Indicator Description	Current Use			Prior Testing Y / N	Possible Testing (brief description of statistical testing)
	Where/ Who	How Long	Purpose		
Consumer confidence that if they or member of their Family became ill, they would receive appropriate care	• employers • business coalitions • consumers • HMOs • indemnity insurers • providers • labor organizations • government agencies • researchers. • policy makers • health care indicators appear in public polls without regularity or consistent wordings	"confidence" is a standard indicator used in polls; however, it has only recently (about 1990 when political interest peaked) been applied in health care.	"Confidence" is measured by economists to predict consumer spending activity. As health care indicator, may predict public support of health legislation. Could also be tracked over time using a reference point to see how policy changes have affected consumer attitudes about the health system (e.g. confidence before and after change in provider services).	Access - no Quality - no Public Perception-no Consumer Satisfaction - no	• time trend analyses (noting different wordings); data should be timely and consistent with findings across multiple surveys and time periods • context effects, i.e. effects of biased or confusing question wordings • sampling and administrative reliability, i.e. assign proper weights to control for sampling errors, effects of survey setting (e.g. hospital) on responses • validity: content, item groupings, rating scales • accuracy, i.e. vulnerability of data to manipulation, screening' questions to ensure respondents understand questions • clarity of measurement objectives (i.e. clarify what type of care is measured -- member, patient, or visit). • process issue: survey methods, instruments, and findings should be available for independent scrutiny, e.g. make polls available in entirety to archival organizations such as Roper Center for Public Opinion Research.
Percentage of population who feel that US is spending too much on health care	• employers • business coalitions • consumers • HMOs • indemnity insurers • providers • labor organizations • government agencies • researchers • policymakers	collected without regularity or consistent wording in recent years (coincident with health reform debate)	• to determine public view of government/ individual Americans spending on health care • could be tracked over time from a reference point to see how policy changes in medical expenditures impact public views	Expenditures-no Insurance-no Public Perception-no Consumer Satisfaction-no	see above

Percentage of Americans who had problems paying medical bills last year	• employers . business coalitions . consumers . **HMOs** . indemnity insurers . providers . labor organizations . government agencies . researchers . policymakers	collected without regularity or consistent wording in recent years (coincident with health reform debate)	• to determine how many people in the US actually experienced problems with the medical costs of the health system . could be tracked over time using benchmarks to signal how policy changes affect the way the public reports financial difficulties in paying for health care	Expenditures-no Insurance-no Public **Perception**-no Consumer Satisfaction-no	see above. **Blendon** ("Paying" 92) stresses the importance of direct vs. proxy (there are many) measures and suggests that the indicator be compared to insurance status and to how families cope with realities of illness and disability.
Percentageof population willing to recommend their current health plan to friends and family	Users include: 1. Bay Area Business Group on Health **&** CA Public Employees Retirement System 2. Center for the Study of Services/Office of Personnel Management 3. MN Joint Labor Management Commission on Health Plans **&** Dept. on Employee Relations 4. HMO Group 5. Ohio State (**c.f.** Health Institute) 6. GTE, Xerox, DEC	1. every other year since 1991 2. once (1994) 3. every other year since 1991 4. every 2 years since 1988, but in 1992 changed to phone survey, so wording may be different 5. 1994 once 6. 1993 but may repeat in 1995 (survey designed for use every two years)	1. report card during open Enrollment to aid consumer choice, plan QI 2. report card during open enrollment to aid consumer choice, plan **QI** 3. report card during open enrollment to aid consumer choice, plan **QI** 4. marketing and **QI** for group health plans 5. **QI** 6. help employees choose plan, QI * this indicator is usually compared to measures of disenrollment to capture best picture of consumer satisfaction with health plan	Access-no Expenditures-no Insurance-no Quality-no Consumer Satisfaction-yes	see above Surveys usually have a core set of measures that summarize the results of subindicators. This indicator is a **subindicator/proxy** for satisfaction and tests have shown that it correlates well. The indicator is commonly used in surveys, but it can be asked in different ways/with different wordings. ** note: prior testing is a category involving many levels and types of testing. Validity of content, item grouping, and response scales have been tested. However, no reliability tests have been done to see if people who are willing actually do recommend their plan. Current users find that the indicator is very good as a proxy for satisfaction with plan and do not think that there is a need for the costs of testing such reliability.

					• see above Other Validity Issues: . clarity of measurement objectives (i.e. clarify what is measured -- member, patient, or visit satisfaction). . Additional considerations are how satisfaction ratings are influenced by different settings in which care is given and by sampling biases. . Content analysis of letters of complaint may also contain useful information relevant to this indicator. Even if testing is too costly to conduct, the value of this indicator for policy purposes may make it worthwhile for NCHS to collect data for this measure. Current users cite the need for the indicator to be used in a national survey. They are concerned that their measurements are based on non-representative samples. Survey respondents have coverage and tend to be employed by the most forward-thinking employers (who have in most cases sponsored the survey). NCHS use of this indicator could thus provide comparative data to guide policy making.
Percentage of population more **satisfied** with current plan than those available in past	• employers • business coalitions • consumers • HMOs • indemnity insurers • providers • labor organizations • government agencies • researchers • policy makers	--	• to determine whether consumers are satisfied with changes in plans; would be most useful if compared over time from a reference point in order to track how specific policy changes in benefits have impacted consumers and to what extent	Access -no Expenditures-no Insurance-no Quality-no Public Perception-no Consumer Satisfaction-no	. see above To test reliability, compare this year's disenrollment rate with last year's rate. To test specificity, compare this year's satisfaction with particular benefit options to the satisfaction reported last year.

Measures of socio-economic factor risk (e.g., income)	Users include: 1. Bay Area Business Group on Health & CA Public Employees Retirement System 2. Center for the Study of Services/Office of Personnel Management 3. MN Joint Labor Management Commission on Health Plans & Dept. on Employee Relations 4. HMO Group 5. Ohio State (c.f. Health Institute) 6. GTE, Xerox, DEC 7. NCQA , UAW, GM, Ford, Chrysler, & Michigan State 8. Fordham Institute for Innovation in Social Policy	1. every other year since 1991 2. once (1994) 3. every other year since 1991 4. every 2 years since 1988, but in 1992 changed to phone survey, so wording may be different 5. 1994 once 6. 1993 but may repeat in 1995 (survey designed for use every two years) 7. once (1992) 8. since 1987--tracks change over past 23 years	1. report card during open enrollment to aid consumer choice, plan QI 2. report card during open enrollment to aid consumer choice, plan QI 3. report card during open enrollment to aid consumer choice, plan QI 4. marketing and QI for group health plans 5. QI 6. help employees choose plan, QI 7. QI 8. Index of Social Health measures nation's progress in addressing major social problems for academics, policy makers. and consumers * note: this indicator is generally included in surveys to lest for sampling biases	Access-no Utilization-no Expenditures-no Insurance-no Health Status-no Consumer Satisfaction-no	* may be helpful to see methodology paper by Fordham Institute on Index of Social Health -- in press, available in "few months" A problem that has been found when the reliability of this indicator has been tested is that there is a trade-off of respondent trust/willingness to complete the survey. Many models have been tested to see what the best way of administering/using this indicator is (e.g. in the 70s the RAND Health Insurance Study looked at income and tried to test reliability by requiring use of tax forms, etc. -- this made respondents unhappy). However, the indicator is commonly included without testing of the specificity/ reliability of the indicator, especially as it is worded. There is consensus that the measure is important, but testing is usually at the level of factor analyses and significance with a good faith assumption that the measure gives a reliable measure of risk factors.

Part 2– Current and Potential Data Sources

TABLE B – NCHS PRIMARY INDICATORS – IMPLEMENTATION – RELATED ANALYSIS

Indicator Description	NCHS Survey		Other Surveys	
	Currently Available	Potential Vehicle	Currently Available	Potential Vehicle
% pop who are smokers	NHIS: Have you smoked at least 100 cigarettes in your entire life? Do you now smoke cigarettes every day, some days, or not at all?	--	BRFSS (47 states & DC in 1991): "Same questions as NHIS or NHANES" American Lung Association?? (check)	--
% pop. who are overweight	NHIS : "About how much does __ weigh without shoes?" NHANES (successive 5 yr cohorts): Weight measured as part of survey.	--	BRFSS (47 states & DC in 1991): "Same questions as NHIS"	--
% pop/ with excessive alcohol consump-tion	NHIS 1983, 85, 88.: contain 17-page alcohol supplement, divided into sections: screening/abstainrs, lifetime infrequent drinkers, current drinkers, and former drinkers. Screening section contains following items, asked about every family member and self: "please tell me which one best describes __?: Heavy drinker, moderate, light, very light or occasional, quit drinking, never drink, D.K." Also includes many objective measures, such as "In past 12 mo., about how many drinks of any alcoholic beverage did you have? NHANES	--	• BRFSS (47 states & DC in 1991): "Same questions as NHIS or NHANES"; •Alcohol Epidemiol Surveill System, NIH, NIAAA: (gallons per capita -- GET QUESTION); •Monitoring the Future-H.S. Senior Srvy	--
% of pop. reporting regular seat belt use	BRFSS	--	--	--
Infant mortality risk composite (perinatal mortality)	National Vital Statistics System	--	--	--
Infant mortality risk composite (infant mortality)	National Vital Statistics System	--	--	--
Infant mortality risk composite (low birth weight)	National Vital Statistics System	--	--	--
Mortality rates by age group, by SES	National Vital Statistics System	--	--	--
Disability rate composite index	NHIS (annual), NHANES	--	--	--

Indicator Description	NCHS Survey		Other Surveys	
	Currently Available	Potential Vehicle	Currently Available	Potential Vehicle
Adult screening fates for cancer, diabetes, hypertension (relative to age/sex appropriate tgt)	NHIS (annual), NHANES	--	--	--
Rate of "avoidable" hospitalizations	NHIS	--	--	Note: data in IOM & RWJ access rprts came from hosp dischrge summaries; would require prospective data collectn? what about hosp dischrg survey?
% of emergency room visits for non-urgent reasons	NHAMCS (emergency dept summary, annual)	--	--	--
Years of healthy life	Health status data from NHIS, combined with life expectancy data from National Vital Statistics System	--		--
Years of unhealthy life	Health status data from NHIS, combined with life expectancy data from National Vital Statistics System	--		--
Context indicators:				
Composite score of environment-induced risk	National Vital Statistics System (mortality data), NHANES, National Hospital Discharge Survey (for asthma hospitalizations)	--	CDC Surveilence systems, EPA data systems	--

TABLE B – NCHS PRIMARY INDICATORS : IMPLEMENTATION – RELATED ANALYSIS

Indicator Description	NCHS Survey		Other Surveys	
	Currently Available	Potential Vehicle	Currently Available	Potential Vehicle
Premature Chronic Disease Mortality	Mortality rates, by disease and age are available; could be aggregated to give rate of premature chronic disease mortality; NHIS, sections l-6 on the Conditions List ("Have you ever had coronary heart disease, hypertension, rheumatic heart disease, etc..")	–	Yes, from National Vital Statistics System	--
Percentage of Population with regular source of primary care	No (Similar data available); NHIS- "What types of doctors have you visited in the specified two week period?"	--	No (AMA has info on # of primary care physicians)	No
Out-of-pocket spending as a percentage of disposable income, acute care	Yes (Office of National Health Statistics); NHIS	--	NMES, exhibit 13, Flat Fee Section, asks about types of visits/services covered by a flat fee. L6: coverage by insurance, other source, etc.., L7. total charge you paid (whole section)	--
Out-of-pocket spending as a percentage of disposable income, long term care	Yes (Office of National Health Statistics), NHIS	--	NMES; Families USA Foundation, 1992 for out of pocket costs for elderly, break down to long-term costs	
Extent of covered services relative to set standard	No; Similar indicators include: Health care coverage for persons >65 yrs (over <65 yrs), according to type of care and selected characteristics (CDC, NCHS, from NCHS)	--	NMES asks about types of insurance, "extra cash, insurance that pays only for certain services, etc. (Exhibit 30)	--
Percentage of population with health insurance coverage	Yes	--	Current Population Survey, Census Bureau, 1991; NMES, exhibit 30 (By Medicare, Medicaid, private, and other)	--
Newly enrolled in Medicaid	No	No	HCFA, 1992	--
Distribution of population by primary source of coverage	Yes	--	Yes, Department of the Commerce, Bureau of the Census; NMES has location, type of coverage (similar to this indicator)	--
National health spending as a percentage of GDP	No	No	Yes, HCFA Office of the Actuary	--

Utilization of primary services (relative to target levels)	No; Similar data includes: # of primary care physician contacts, interval since last physician contact, #of office visits to physicians	--	NMES, Exhibit 20, asks about visits to medical providers and to which type of providers (J 13)	--
Utilization of preventive services (relative to target levels)	No; Similar data includes: # of primary care physician contacts, interval since last physician contact, #of office visits to physicians		NMES, Exhibit 20, asks about visits to medical providers and to which type of providers (J 13)	--
Mix of available health professional relative to a "best practice" standard	No	No	No; Similar- AMA has statistics on the distribution and characteristics of practicing physicians	--
Rate of pharmaceutical and other technological innovation	No	No	Yes- FDA	--
Hospital patient mortality rate by age group	People who died during the reference period are not included in NHIS.		Yes- mentioned in IOM: Access to Care; NMES has some data on inpatients, but not death rates; AHA has hospital discharge rates that include deaths, could be broken down for deaths only.; Vital statistics data	--
Context Indicator: Newly unemployed/ FT employed	No	No	NMES has employment data; Also, Current Population Survey- Question 24a: "When did . . last work for pay at a regular job or business, either full-time or part-time?"	--
Context Ind.: Newly eligible for Medicare	Yes, NHIS asks about Medicare status (Section L, Question 1, "; Could compare increase on an annual basis)	--	NMES has Medicare enrollees, enrollment dates, etc..; HCFA, Bureau of Data Management and Strategy has no of enrollees and benefit payments per year.	--

TABLE B NCHS PRIMARY INDICATORS : IMPLEMENTATION – RELATED ANALYSIS

Indicator Description	NCHS Survey		Other Surveys	
	Currently Available	Potential Vehicle	Currently Available	Potential Vehicle
Consumer confidence that if they or member of their family became ill, they would receive appropriate care	none	National Health Interview Survey 1993, 1994 HIS-3 Supplement Part A Access to Care: "is the -- able to provide for most of -- needs when -- is sick?" "Is there a person or place that -- usually goes to when -- needs routine or preventive medical care? " "At any time in the past 12 months did anyone in the family CHANGE the place to which he or she usually goes for medical care?"	lone, although polls do ask about confidence in doctors, insurance companies, pharmaceuticals	• LA Times 9/28/93 survey asked Americans to rate their health care in these areas: providing benefit security; being affordable; allowing selection of doctors, hospitals, and medical services; promptness, i.e. making sure you don't have to wait for treatment or payments; providing access to the best health care; convenience, i.e. providing treatment and services at a reasonable distance from home Could be asked in polls by: . commercial pollsters (e.g. Gallup, Roper, Yankelovitch, Harris) perform syndicated surveys as well as custom polls which might include this measure • media pollsters (e.g. CNN/USA Today, LA Times CBS/New York Times, ABC/Washington Post) • political polling groups (e.g. Democratic party) • academic/think tank polling groups (e.g. National Opinion Research Center) look at satisfaction with health care provider as a measure of confidence in care e.g. how often, how long, doe the patient see the same physician or provider?

Percentage of population who feel that US is spending too much on health care	none	National Health Interview Survey 1993 and 1994 Supplement. c.f. Part C Private Plan & Coverage Detail: "In (months), how much did [you/your family] spend for health insurance premiums for (plan name)? Please include payroll deductions for premiums" "During the past 12 months, about how much did [you/your family] spend for medical care? Do not include the cost of over the counter remedies, the cost of health insurance premiums, or any costs for which you expect to be reimbursed." for both, a response scale of (in dollars) zero, 1-9, 10-19, 20-49, 50-99, 100-199, 200-499, 500 or more, don't know).	. [Blendon '93 "Bridging"] CBS News/ NYT 2/93 survey: "(agree/ disagree) spending too much/too little on health as a nation [or] spending too much/ too few of our tax dollars on health care" • NORC annual General Social Survey with national full sample (since 1973) • Kaiser/ Harvard/Princeton Survey Res Assoc • Gallup (1989)	. polling groups **listed above** . related indicators appear regularly in polls, e.g. Wall St. J/NBC 6/91 "Which of the following four issues is the most important health care issue facing the country at the present time? **High cost** of care, problem of uninsured, access to health care, quality of health care, other/not sure"
Percentage of Americans who had problems paying medical **bills last year**	none	National Health Interview Survey 1933 and 1994 Supplement has proxy questions related to this indicator: c.f. part C Private Plan & Coverage Detail, Part A Access "During past 12 months, has anyone in the family delayed seeking medical care because of worry about the cost?"	. "Has your household been hurt financially by medical bills or experienced cutbacks recently in health benefits or been made to pay more of health insurance costs?" (NYT/ CBS 8/9 1)	. polling groups listed above . **Kaiser/Harvard/NORC** Survey composite measures of problems paying medical bills "Did you have **any** of the following problems since [date 1 year ago]?" among other items "having enough money..." : "... to pay doctor or hospital bills, "...**for** prescription drugs," "...for nursing home services," "...**for** yourself or another family member," "...**to** pay for home health care services"
Percentage population willing Lorecommend their current health plan to friends and family	none	add to **NHIS** Supplement sections on access and coverage.	GHAA: "Would you recommend your current health insurance plan to your family or friends if they needed care? Definitely yes, probably yes, probably not, definitely not. "	. National Research Corporation . PSQ Form **II** . **AHA** Hospital Survey . Picker Commonwealth Survey . Harvard Community Health Plan . AHCPR Survey (in development)
			EHCVS: same question as GHAA survey **CSS/OPM**: same as GHAA plus "If the cost of plans were not a concern, would you recommend..."	
			CalPERS: "How likely would you be to recommend your plan to a fellow employee or retiree? very likely, somewhat likely, neutral, unlikely, very unlikely" HMO Group: (phone) same as GHAA HSQA. yes/no "Would you recommend this hospital to a friend or loved one?" "Would you recommend your attending doctor to a friend or loved one?"	• **NCQA/Michigan** survey • NCQA Consumer Information Report Card (in development) . NCQA survey of Medicaid population (in development) . MN State survey . new survey by **CareData** Reports Inc. -- waiting for info they have sent

Percentage of population more satisfied with current plan than those available in past	no	National Health Interview Survey Supplement section on private plan and coverage detail)	one with this wording	all "other surveys" listed in row above Some surveys have asked questions which are related to this indicator. -- Conference Board Poll 9/92 asked Americans about their impressions of the value they got for what they were charged -- Fact Finders/Novalis Corp poll 1/14/93 asked about satisfaction with quality of health care services they now receive.
Measures of socio-economic factor risk (e.g., income)	National Health nterview Survey 1993, 1994 Supplement al Booklet	I similar survey with a larger sample size	Surveys that collect measures on income, age, education, race, and gender: • GHAA • EHCVS • HMO Group • NCQA/MI • CSS/OPM • Picker Commonwealth • CalPERS • USQA • Commonwealth Fund National Hosital Survey	• could be included in all other surveys listed previously • the number of surveys and questions identified depends on which social and economic measures are included in this indicator -- income, age, education, race, and gender are identified here • "Risk" can be measured by many proxy indicators, and many different types of questions are used; risk of what (e.g., reduced access to care, getting a particular disease because of race) needs to be clearly defined. • most surveys collect data on income, demographics to understand their samples -- individually, these might not be that informative of associated health risks (e.g., a question about what income status is reveals less about risk compared to a question about how income status affects access to care, but this can vary depending on how the total data collected is available)

CONSOLIDATED LIST OF "SECONDARY" MEASURES/INDICATORS

x = Can serve as one of either Leading, Lagging, or Coincident

Indicators	Access	Utilization	Expenditures	Insurance	Health Status	Quality	Public Perception	Consumer Satisfaction
Preventive Care/Screening								
Immunizations % adults age 65+ immunized for pneumonia & influenza % children with age-approp. immun.	X	X			X	X		
Cancer Screening colorectal cancer screening (% receiving digital rectal exam, % receiving blood stool test for colon/rectal cancer, % receiving proctoscopic exam for colon/rectal cancer) Women's Cancers breast cancer screening (mammography as age-approp.) % women age 18+ receiving pap test	X	X			X	X		
Heart Disease cholesterol screening rate hypertension screening rate	X	X			X	X		
Maternal & Child Health % pregnant women with prenatal care in 1 st trimester % pregnant women obtaining adequate prenatal care	X	X	X	X	X	X		
Family Planning % with at least one family planning visit	X	X	X	X	X	X		
Adverse Outcomes								
% with activity limitations/restrictions	X	X	X		X	X		
Deaths from injuries (maybe under behavioral??)		X	X		X			
Dental health % children with >1 cavity % of adults with no teeth	X	X	X	X	X	X		

CONSOLIDATED LIST OF "SECONDARY" MEASURES/INDICATORS (CONTINUED)

x = Can serve as one of either Leading, Lagging, or Coincident

Indicators	Access	Utilization	Expenditures	Insurance	Health Status	Quality	Public Perception	Consumer Satisfaction
STDs and Communicable Diseases tuberculosis incidence congenital syphilis incidence AIDS incidence HIV infection rate other STDs incidence	X	X	X		X			
"Inappropriate??" Utilization admissions for referral sensitive surgeries?? avoidable hospitalizations for acute conditions asthma inpatient rate substance abuse/mental health readmissions	X	X	X	X	X	X		
Maternal & Child Health incidence of low birth weight perinatal mortality inpatient infant mortality (duplicate??) infant mortality (41 year) incidence of vaccine preventable childhood diseases measles incidence (component of above??)	X	X	X	X	X	X		
Cancer incidence of late stage breast cancer incidence of late stage cervical cancer	X	X				X		
Environmental % children tested & with blood lead levels .15 mug/dl violent crimes/1.000	X?				X			
Family Planning % births unintended at time of conception	X	X	X					
Basic Utilization Measures								
General Medical medicine/surgery hospital admission/1,000 outpatient visits/1,000		X						
Primary Care adult primary care visits OB/Gyn visits/1 ,000 pediatric visits/1 ,000		X						

CONSOLIDATED LIST OF "SECONDARY" MEASURES/INDICATORS (CONTINUED)

x = Can serve as one of either Leading, Lagging, or Coincident

Indicators	Access	Utilization	Expenditures	Insurance	Health Status	Quality	Public Perception	Consumer Satisfaction
Emergency/Intensive care emergency room visits/l ,000 neonatal intensive care unit admission/l ,000	X	X						
Mental Health & Substance Abuse ambulatory chemical dependency admission/l ,000 & ALOS inpatient mental health admission/l ,000 & ALOS inpatient chemical dependency admission/l ,000 & ALOS substance abuse readmissions		X						
C-section rate		X						
Expenditures								
Total Expenditures by type of service			X					
Public Expenditures Medicare Medicaid other federal state-funded			X					
Private Expenditures private insurance employer sponsored total employer share individually-purchased consumer payments (total, per capita, as % of family income) out-of-pocket premiums	X	X	X	X			X	X
% with financial status seriously hurt by medical bills								
Uncompensated Care	X		X					

CONSOLIDATED LIST OF "SECONDARY" MEASURES/INDICATORS (CONTINUED)

x = Can serve as one of either Leading, Lagging, or Coincident

Indicators	Access	Utilization	Expenditures	Insurance	Health Status	Quality	Public Perception	Consumer SaSatisfaction
Insurance Status								
Managed Care HMO enrollment	X	X	X	X				
Lack of Insurance length of uninsured episodes newly uninsured	X	X	X	X			X	
Insurance Coverage Medicare enrollment Medicaidenrollment private insurance coverage	X	X	X	X				
Benefit cuts or premium and cost-sharing increases							X	
New Demand newly privately insured individuals new Medicaid approvals	X	X	X	X				
New Supply newly licensed primary care practitioners newly certified specialists	X	X	X					
Behavioral Factors								
prevalence of cigarette smoking prevalence of obesity prevalence of excessive alcohol use prevalence of substance abuse prevalence of seat belt use prevalence of regular exercise		X	X		X			
Wait Time actual or average time to get an appointment	X					X		X

CONSOLIDATED LIST OF "SECONDARY" MEASURES/INDICATORS (CONTINUED)

x = Can serve as one of either Leading, Lagging, or Coincident

Indicators	Access	Utilization	Expenditures	Insurance	Health Status	Quality	Public Perception	Consumer Satisfaction
Satisfaction								
level of statisfaction with insurance coverage	X		X	X		X	X	X
level of statisfaction with access								
level of statis. with continuity of care and choice of prov.								
level of statisfaction with provider qualifications								
level of statisfaction with preventive care								
level of statisfaction with hospital care								
level of statis. with recommend current insurance plan								
level of statisfaction with consumer support/education								
level of statisfaction with affordability of care								
Confidence								
% with a great deal of confidence in doctors	X			X		X	X	X
% with a great deal of confidence in insurance companies								
% with a great deal of confidence in pharmaceuticals								
% with a great deal of confidence in federal government								
Willingness to Accept Cost Reduction Measures								
physician choice limits	X	X	X		X	X	X	X
price controls								
preference for Canadian system								
Importance of Health Issues								
cost of care	X		X	X		X	X	X
uninsured								
access to care								
quality of care								
willing to pay additional taxes								

APPENDIX B:
PROPOSED INDICATORS FOR MONITORING HEALTH REFORM ACTIVITIES AT THE STATE LEVEL

As noted in the introduction to the final report, over the course of this health reform indicator project there have been important shifts in the direction of health reform policy and the level of near-term implementation. The focus of reform activity has largely shifted from the national level to the state level. Individual states, responding to their own particular circumstances, have generally taken different approaches to reform. This introduces an analytic challenge in terms of identifying indicators to monitor the impact of policies.

To help NCHS in addressing indicator needs associated with state level monitoring of reform, Lewin-VI-II has developed a preliminary analysis to identify common areas of focus in state-level reform policy, and indicators that would: suggest the need for reform policy in these areas; or gauge the impact of reform policies implemented to address these areas. The third element of the analysis addresses the level of data needed (e.g., national level or state level) and potential data sources.

PROPOSED INDICATORS FOR MONITORING HEALTH REFORM ACTIVITIES AT THE STATE LEVEL

REFORM ACTIVITY	INDICATOR	LEVEL OF AGGREGATION	AVAILABILITY
CONSTRAINING EXPENDITURES	♦ Total spending for health services (public and private)	National State	HCFA Health Accounts
♦ Expenditure Limits	♦ Total spending by payer (private, Medicaid, Medicare, out-of-pocket)	National State	HCFA Health Accounts
♦ Hospital Rate Setting	♦ Total spending by provider (hospital, physician, dental, pharmaceutical, long-term care)	National State	HCFA Health Accounts
♦ Regulation of Physician Fees	♦ Per capita out-of-pocket spending by provider (hospital, physician, dental, pharmaceutical, long-term care)	National State	N/A
♦ Certificate of Need ♦ Restrictions on Provider Self-Referrals	♦ Expansion of capacity • New facilities • Additional beds • New services • New technology • Spending on capital expansion, renovation	National State By Facility	Partial Availability from the AHA Survey
♦ Malpractice Reform	♦ Number of malpractice claims	State	N/A
	♦ Level of malpractice awards	State	N/A

PROPOSED INDICATORS FOR MONITORING HEALTH REFORM ACTIVITIES AT THE STATE LEVEL (CONT.)

REFORM ACTIVITY	INDICATOR	LEVEL OF AGGREGATION	AVAILABILITY
EXPANDING INSURANCE AFFORDABILITY	♦ Number of characteristics of the uninsured (e.g., age, sex, race, income, employment, status)	National State Sub-state	CPS CPS N/A
♦ Consolidated Purchasing	♦ Duration of uninsurance	National State Sub-state	NMES N/A N/A
♦ High Risk Pools	♦ Number of characteristics of firms that do not offer insurance (e.g., size, profitability, industry)	National State Sub-state	HIAA (except profitability) N/A N/A
♦ Tax Incentives/Credits	♦ Number and characteristics of self-insured firms	National State Sub-state	N/A N / A N/A
♦ Medical Savings Accounts	♦ Average and range of insurance premiums	National State By Insurer	HIAA Foster Higgins (employer-based) (both proprietary) N/A N/A
♦ Subsidized Coverage	♦ Presence of community rating (statewide or specific insurers)	State Insurer-Specific products	GHAA (HMOs only)
♦ Bare Bones Plans	♦ Demographics (e.g., age, sex, race, income, health status)	National State Sub-state	Census, NMES for health status Census Census
	♦ Public program target population compared to enrollment	National State Program-specific	Depends on public program

PROPOSED INDICATORS FOR MONITORING HEALTH REFORM ACTIVITIES AT THE STATE LEVEL (CONT.)

REFORM ACTIVITY	INDICATOR	LEVEL OF AGGREGATION	AVAILABILITY
ENSURING UNIVERSAL COVERAGE	♦ Number and characteristics of the uninsured	National State Substate	CPS CPS N/A
♦ Mandates	♦ Number and characteristics of firms that do not offer insurance	National State Substate	BLS N/A N/A
♦ Entitlements	♦ Number and characteristics of self-insured firms	State Substate	N/A N/A N/A
MINIMIZING RISK SELECTION	♦ Average premium cost by age, sex, race, "risk class", benefit package	National State Substate	N/A N/A N/A
♦ Uniform Benefits Package	♦ Number of plan transfers (annual)	National State Substate	N/A N/A N/A
♦ Community Rating	♦ Percent of persons in "job lock"	National State Substate	N/A N/A N/A
♦ Insurance Market Reforms (e.g., Open Enrollment; Guaranteed Issue; Portability)	♦ Percent of persons unable to obtain coverage because: • Coverage is not available • Coverage is unaffordable	National State Substate	N/A N/A N/A
	♦ Distribution of high risk patients by plan	State Substate	N/A N/A

PROPOSED INDICATORS FOR MONITORING HEALTH REFORM ACTIVITIES AT THE STATE LEVEL (CONT.)

REFORM ACTIVITY	INDICATOR	LEVEL OF AGGREGATION	AVAILABILITY
ENSURING UNIVERSAL COVERAGE (CONTINUED)	♦ Utilization of "high-"cost services by plan	State Substate	GHAA (HMOs only and regional)
	♦ Expenditures/patients by plan	State Plan	NAIC (working towards centralized electronic database)
INFLUENCING NATURE AND CAPACITY OF DELIVERY SYSTEM	♦ Number of Physicians	National State Substate	ARF ARF ARF
♦ Integrated Delivery Systems	♦ Physicians/100 population	National State Substate	ARF ARF ARF
♦ Anti-Trust Exemptions/Cooperative Agreements	♦ Number of primary care physicians	National State Substate	ARF ARF ARF
♦ Financial Incentives for Health Profession Students/Residents	♦ Primary care physicians/1000 population	National State Substate	ARF ARF ARF
♦ Incentives and Regulations for Educational Institutions	♦ Number of primary care residency slots	National State Substate	AMA AMA AMA
♦ Funding for Capacity	♦ Primary care residency slots as a percent of total residency slots	National State Substate	AMA AMA AMA

PROPOSED INDICATORS FOR MONITORING HEALTH REFORM ACTIVITIES AT THE STATE LEVEL (CONT.)

REFORM ACTIVITY	INDICATOR	LEVEL OF AGGREGATION	AVAILABILITY
INFLUENCING NATURE AND CAPACITY OF DELIVERY SYSTEM (CONTINUED)	♦ Percent of primary care residency slots filled	National State Substate	AMA AMA AMA
♦ Expansions in Non-Physician Scope of Practice	♦ Beds/1000 population • Acute • Long-term care • Sub-acute	National State Substate	ARF ARF ARF
♦ Any Willing Provider Clause	♦ Percent of population with a regular primary care provider	National State Substate	N/A
♦ Freedom of Choice Clause	♦ Number of physician hospital organizations	National State Substate	N/A
	♦ Number of hospital cooperative agreements	National State Substate	N/A
	♦ Percent of population in MUAs	National State Substate	HRSA
	♦ Percent of population in HPSAs	National State Substate	HRSA
	♦ Number of Integrated Delivery Networks	State Substate	N/A

PROPOSED INDICATORS FOR MONITORING HEALTH REFORM ACTIVITIES AT THE STATE LEVEL (CONT.)

REFORM ACTIVITY	INDICATOR	LEVEL OF AGGREGATION	AVAILABILITY
INFLUENCING NATURE AND CAPACITY OF DELIVERY SYSTEM (CONTINUED)	♦ Number of mid-level practitioners	National State Substate	Professional Associations
	♦ MLPs/1000 population	National State Substate	Professional Associations
PRESERVING OR ENHANCING QUALITY/ACCESS	♦ Age-sex adjusted mortality	National State Substate Delivery System Provider	NCHS *(National and State)*
♦ Practice Guidelines	♦ Immunization rate	National State Substate Delivery System Provider	CDC *(National and State)*
♦ Information Dissemination	♦ Infant mortality	National State Substate Delivery System Provider	NCHS *(National, State and Substate)*
	♦ Low-birth weight rate	National State Substate Delivery System Provider	CDC *(National and State)*
	♦ Vaccine preventable disease rate	National State Substate Delivery System Provider	CDC *(National, State and Substate)*
	♦ Late stage breast cancer detection rate	National State Substate Delivery System Provider	Tumor Registeries *(State)*

PROPOSED INDICATORS FOR MONITORING HEALTH REFORM ACTIVITIES AT THE STATE LEVEL (CONT.)

REFORM ACTIVITY	INDICATOR	LEVEL OF AGGREGATION	AVAILABILITY
PRESERVING OR ENHANCING QUALITY/ACCESS (CONTINUED)	♦ Hospital mortality rate for selected DRGs	National Delivery State System Substate Provider	Available from some states (e.g., PA) *(State and Substate)*
	♦ Tuberculosis incidence	National Delivery State System Substate Provider	CDC *(National and State)*
	♦ Outpatient visits/population	National Delivery State System Substate Provider	N/A Available from some plans *(Delivery System)*
	♦ Emergency room utilization/population	National Delivery State System Substate Provider	Available from some plans *(Delivery System)*
	♦ Number of malpractice suits	National Delivery State System Substate Provider	N/A

APPENDIX C:
REFERENCE TABLES OF IDENTIFIED INDICATORS AND BIBLIOGRAPHY OF SOURCES INCLUDED IN LEWIN-VHI REVIEW OF LITERATURE

Community-based Indicators of Access to Care

Measures	BMA Access Report, 1993	RW Johnson Access Report, 1993	Healthy People 2000, 1992
Utilization			
Family Running ***& Prenatal*** Care			
% pregnant women obtaining adequate care (**Modified Kessner** Index)	✓		
% women with at least one **family** planning visit		✓	
% women using any contraceptive method		✓	✓
% **pregnant women** receiving first trimester **care (and** by poverty status)		✓	✓
% pregnant women reporting problem obtaining **prenatal** care **(and** by **poverty**		✓	
Children's Health and Prevention			
% of children vaccinated **(DPT, MMR,** polio)	preschool **children**	**children** 1-4	people < 25
Children's physician visits per year, **by poverty** status		✓	
Poor and near poor children's physicians visits per year, by insurance status		✓	
% poor **&** near poor children with a **usual** source of *care*		✓	
Sources of children's health care, by **poverty** status		✓	
Adult Health and Prevention			
% women **40+** yrs receiving clinical breast exam	Age 40+ yrs: more than 3 yrs ago, within past 3 yrs, because of health problems, never had procedure		
% women **40+ yrs** reporting mammogram	Age 40+ yrs: more than 3 yrs ago, within past 3 yrs, because of health problems, never had procedure	Age 50+: received in the past year	Various groups
% women **18+** yrs reporting pap smear	Age 18+ yrs: more than 3 yrs ago, within past 3 yrs, because of health problems, never had procedure	Age 18+: received in the past three years	✓
% persons receiving digital rectal exam for **colon/rectal** cancer		Ages 40+	Oral, skin, & digital rectal
% persons receiving blood stool test for **colon/rectal cancer**		Ages 50+	✓
% persons receiving proctoscopic exam for **colon/rectal** cancer		Ages 50+	✓
Physician contacts, adults < 65		✓	
% Medicare beneficiaries ever immunized against influenza		✓	
% Medicare beneficiaries ever immunized against pneumococcal pneumonia		✓	
CABG procedures per 1000 Medicare enrollees		✓	
PTCA procedures per 1000 Medicare enrollees		✓	
Best use of care			
% with regular source of care			✓
Receipt of recommended services (by various groups)			✓
Ave # physician contacts annually by those in fair to poor health	✓		
% of person in fair to poor health with no physician contact in past year	✓		

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Community-based Indicators of Access to Care

Measures	IOM Access Report, 1993	RW Johnson Access Report, 1993	Healthy People 2000, 1992
Use of high-cost discretionary care: Admissions for referral-sensitive	✓		
Lack of timely use of acute medical care: % healthy individuals who do not contact a	✓		
Average # dental visits per year	✓		
% persons with dental visit in the past year		Ages 2-4, 5-17, 18+	(% w/ regular dental visits)
Outcomes			
Family planning and prenatal care			
Infant mortality (< 1 yr)	✓		✓
Neonatal mortality (< 28 days)		✓	
Postneonatal mortality (28 days - 1 yr)		✓	
Low birthweight (< 2500 grams)	✓	✓	✓
Congenital syphilis	✓	✓	
% births unintended at the time of conception		✓	(unintended pregnancy)
Children's Health and Prevention			
Incidence of vaccine-preventable childhood diseases	diphtheria, measles, mumps, pertussis, polio, rubella, tetanus	Measles	diphtheria, measles, mumps, pertussis, polio, rubella, tetanus, others
Hospitalizations for ambulatory care sensitive conditions per 100,000 children		✓	
% decayed teeth that were filled, ages 5-17		✓	
Adult Health and Prevention			
Incidence of late-stage breast cancer	% diagnosed after "regional" or "distant" stage	% diagnosed after metastasis	
Incidence of late-stage cervical cancer	% diagnosed after "regional" or "distant" stage	% diagnosed after metastasis	
Estimated access-related excess mortality	Blacks versus whites		
Avoidable hospitalizations for acute conditions (bacterial pneumonia, cellulitis,	✓		
% adults with no teeth	✓		✓
Availability			
Family Planning & Prenatal Care			
Government family planning expenditures per woman of childbearing age		✓	
OB/GYNs and GP/FPs per 100,000 women ages 15-44		✓	
% OB/GYNs and GP/FPs participating in Medicaid		✓	
Children's Health and Prevention			
Pediatricians and GP/FPs per 100,000 children under age 19		✓	
% Pediatricians and GP/FPs participating in Medicaid		✓	
Federal vaccine funding per child		✓	

Community-based Indicators of Access to Care

Measures	IOM Access Report, 1993	RW Johnson Access Report, 1993	Healthy People 2000, 1992
Adult Health and Prevention			
Internists and GPs per 100,000 people age 18+		✓	
Dentists per 100,000 people		✓	
% without health insurance			✓
Clinical preventive services from publicly funded programs			✓
Provision of recommended services by primary care providers			✓
% of people served by local health department			✓
% of local health departments providing:			
- health education			✓
- child education			✓
- immunization			✓
- prenatal care			✓
- primary care			✓
HIV/AIDS	**		
Substance abuse	**		
Migrants	**		
Homeless people	**		
People with disabilities	*		
Family violence	*		
Emergency services	*		
Post-acute-care services for the elderly	*		
Prescription drugs	*		

*Areas for future indicator development

**Areas for future indicator development, where IOM has already begun work conceptualizing and identifying indicators.

--- Health Status Indicators from Healthy People 2000 and Related Literature

Measure	H_y People 2000 1992 (partial list)	Consensus set 1991	Stoto 1992 (Breakdown by life stage)	ASTHO Reporting System Core Data Set 1990 (US, State, Local - partial list)	Minori1989 (Children's Health)	Larson 1992 (National level only)
Health Status (QOL)						
Years of Healthy Life	✓					
Activity limitations/restrictions,	% w/ major activity limitation due to chronic condition		% noninst'l pop. 65+ w/major activity limitation			limitations of activities, restricted activity
Self-assessed health status						✓
Functional limitations	People age 65+ with self- problems					✓
Mortality						by age & cause
Infant mortality (< 1 year)	✓	✓	✓	✓	✓	✓
Neonatal mortality (< 28 days)					✓	
Postneonatal mortality (28 days - 1 yr)					✓	
Fetal mortality	✓					✓
Homicide	✓	✓				
Suicide	✓	✓			Ages 15-24 within defined pop.	
Motor vehicle accidents	✓	✓			Ages<1, 1-2. 5-14, 15-19	
Injury (accidents, homicide, and suicide combined) (children to young adults)			Age 1-14, 15-24			
Non-motor vehicle accident fatalities					Age groups: <1, 1-4, 5-9, 10-14	
Work-related injury deaths	✓	✓				
Lung Cancer	✓	✓				
Breast Cancer	✓	✓		✓		
Cardiovascular disease	CHD, Stroke	✓	CHD	CHD		
All causes combined	✓	✓				
Premature chronic disease mortality (cancer, heart disease. stroke & diabetes combined)			Age 25-64			
Child abuse or neglect					✓	
Others	✓					

Health Status Indicators from Healthy People 2000 and Related Literature

Measure	Healthy People 2000 1992 (partial list)	Consensus Set 1991	Stoto 1992 (Breakdown by life stage)	ASTHO Reporting System Core Data Set 1990 (US, State, Local - partial list)	Miller 1989 (Children's Health)	Larson 1992 (National level only)
			Full time workers			
Disease/Condition Prevalence/Incidence						Medical conditions in past 12 mo.
AIDS incidence	✓	✓	Ages 13+	✓		
HIV infection rate	✓					
Measles incidence	✓	✓		✓		
Tuberculosis incidence	✓	✓				
Primary & secondary syphilis incidence	✓	✓				
% children tested and with blood lead levels > 15 mug/dl	✓	Age < 5 yrs*	Age 6mo-5yrs		✓	
Hepatitis B incidence	✓	✓*				
Dental health	% age 6-8 w/ 1+ decayed teeth; % age 65+ with no natural teeth; (other measures)	% age 6-8 w/ 1+ decayed teeth*	% age 65+ with no natural teeth			✓
Sexually transmitted disease incidence	Gonorrhea, non-gonococcal urethritis, syphilis (primary & secondary, congenital), genital herpes, genital warts, pelvic inflammatory disease, sexually transmitted Hep B		Ages 15-19 with gonorrhea	Gonorrhea, congenital syphilis incidence		
Workplace injury (incidence of injuries resulting in medical treatment, lost work time, or restricted work activity)	✓		Full time workers			
Incidence of hip fracture in persons ages 65+ (Indicator of disabling conditions)			✓			
% children & youths w/ iron-deficiency anemia					% below traditional Hgb or HCT cutoff, % below 5th pctl	
Asthma hospitalizations (environmental indicator)	✓					
Foodborne Infections	✓					
Risk Factors						
Incidence of low birth weight (<2500 g)	✓	✓	✓		✓	
Births to adolescents	✓	✓	Mothers ages 15-17		Mothers ages < 15, 15-17	
% adolescents in need served by family planning programs				✓		
Prenatal care in first trimester/ lack of prenatal care	✓	✓	✓		(% mothers receiving care in 3rd trimester or no care)	
% pregnant women smoking 10+ cigarettes/day				✓		

Health Status Indicators from Healthy People 2000 and Related Literature

Measure	Healthy People 2000 1992 (partial list)	Consensus Set 1991	Stoto 1992 (Breakdown by life stage)	ASTHO Reporting System Core Data Set 1990 (US, State, Local - partial list)	Miller 1989 (Children's Health)	Larson 1992 (National level only)
Childhood poverty	✓	✓				
% of persons living in counties exceeding EPA standards for airquality during previous year	✓	✓				
Cigarette smoking	✓	✓*	Ages 12-17, 20+	✓		
Alcohol use	✓		Ages 12-17			
Cocaine use	✓		Ages 12-17			
Alcohol abuse	✓	✓*				
Obesity	✓	✓*				
Overweight (BMI>27.8kg/m(2) for men, 27.3 kg/m(2) for women)	✓		Ages 18+			
% overweight adults trying to lose weight				✓		
Hypertension	Controlled HBP	✓*				
Hypercholesterolemia	✓	✓*				
Abuse and neglect of children	BY type of abuse	Confirmed abuse*			Confirmed abuse	
% children in subpop. below 5th pctl on hgt-for-wgt standard growth charts					✓	
Process						
% children immunized'	Age 2 sod under, various other groups	Age2, basic series, definedbyIPAC*	Age1-4, for MMR, DPT, polio		% children in defined pop. not fully immunized (DPT,MMR, polio)	
% adults 65 yrs immunized	Older people and chronicallyill people,for p. pneumonia & influenza	For p. pneumonia & influenza*	For influenza in preceding 12 mo.			
% assessed rivers, lakes, & estuaries supporting beneficial uses (fish&swim)	✓	✓*				
% women receiving pap smear at interval appropriate for age	✓	✓*				
% women receiving breast cancer screening	Mammogram at interval appropriate for age (defined)	Mammogram at interval appropriate forage*	Clin breast exam & mammogram, age 50+	Women age 40+, screened within last 2 years		
% pop receiving serum cholesterol screening	Age 18 + screened in past5 years		Age 18+ ever screened			
% pop. uninsured for medical care	✓	✓*				
% pop. without regular source of primary care	✓	(including dental services)*				
% age 18+ with HBP not under care				✓		

Health Status Indicators from Healthy People 2000 and Related Literature

Measure	Healthy People 2000 1992 (partial list)	Consensus Set 1991	Stoto 1992 (Breakdown by life stage)	ASTHO Reporting System Core Data Set 1990 (US, State, Local - partial list)	Miller 1989 (Children's Health)	Larson 1992 (National level only)
% pop. counseled by h.c. provider about selected risk factors for CVD				✓		
% of primary care providers who provide screening, immunization, md counseling services recommended by the US Prev Svcs Task Force	✓					
Availability/Quality of Services (some examples)						
States conducting state, regional, or local annual infant death review				✓		
Counties with health department prenatal care services				✓		
Preschool child developments programs	✓					
community fitness facilities	✓			✓		
Number children screened for lead poisoning, found positive, & receiving appropriate follow-up				✓		
Health-Related Laws, Regulations, Policies (some examples)						
States mandating coverage for screening mammography				✓		
State environmental laws	✓			✓		
% adolescent mothers who go off AFDC within "x" time of completing job training				✓		

*Proposed indicators, requiring modifications to the existing data collection systems. Recommended as helpful in planning prevention programs devoted to achieving the year 200 objectives.

Process- and Outcome-Based Performance Indicators

Measure	HEDIS 2.0	GHC	United Healthcare Corporation	Florida	Towers-Perrin	Kaiser Northern California	HCFA QARI***	Jackson Hole Group
	Process-Based Indicators						Outcome-B&I Indicators	
Indicators of **Clinical Quality**								
Preventive and Early Detection Services								
Childhood Immunization Rate	✓	*	✓	✓	✓	✓ (by type)	✓	✓
Pediatric vaccine-preventable disease outbreak by type						✓		✓
Cholesterol screening rate	✓	✓			✓	✓		
Mammography screening rate	✓	✓	✓	✓	✓	✓	✓	✓
Pap Smear screening rate	✓	✓	✓	✓	✓	✓	✓	
Sigmoidoscopy screening rate					✓	✓		
Flu immunization 65+		✓		**		✓	✓	✓
Lead Toxicity							✓	
Well Child Health Assessment							✓	
HIV Status							✓	
Sexually Transmitted Diseases								
Newborn Screens							✓	
Tuberculosis							✓	
Sickle Cell Anemia							✓	
Hepatitis B							✓	
Hearing and Vision Screens							✓	
Diabetes							✓	
Hypertension screeing rate						✓	✓	
Prenatal Care								
Low birthweight	✓	✓	✓	✓	✓	✓		✓
Very Low birthweight	✓	✓			✓	✓		

Process- and Outcome-Based Performance Indicators

Measure	Process-Based Indicators						Outcome-Based Indicators	
	HEDIS 2.0	GHC	United Healthcare Corporation	Florida	Towers-Perrin	Kaiser Northern California	HCFA QARI***	Jackson Hole Group
Failure to thrive							✓	
Neural tube defect						✓		
Complex newborn rate						✓		
% to ICN						✓		
inpatient infant mortality						✓		
perinatal mortality rate						✓		
preterm deliveries		✓				✓		
% with first trimester care	✓	*		✓	✓	✓	✓	✓
prenatal screeing						✓	✓	
c-section rate		✓	✓			✓		
vaginal birth after c-section		✓				✓		
Acute and Chronic Care								
Asthma inpatient rate	✓	*	✓		✓	✓	✓	✓
Diabetic retinal exam rate	✓	*	✓		✓			
Late stage breast cancer detection		✓	✓			✓	✓	
Late stage cervical cancer detection				✓		✓		✓
Pediatric accidental poisoning inpatient rate						✓		
Liver transplant survival rate			✓					
Mental Health								
Ambulatory follow-up after hosp. major affective disorders	✓	*			✓	✓		
Hosp. Readmissions		✓		**	✓			
Depression recovery measure								✓
Suicide Rate						✓		

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Process- and Outcome-Based Performance Indicators

Measure	HEDIS 2.0	GHC	United Healthcare Corporation	Florida	Towers-Perrin	Kaiser Northern California	HCFA QARI***	Jackson Hole Group
	Process-Based Indicators						Outcome-Based Indicators	
Substance Abuse								
Hospital Readmissions		✓		**	✓			
Other Appropriate and Efficient Care								
Laminectomy		✓				✓		
Hysterectomy		✓				✓	✓	
Total Hip Replacement							✓	✓
Functional status following hip replacement				✓				✓
Top 10 DRGs		✓						
Heart Disease				**		✓	✓	
CABG or PTCA		✓				✓		✓
Functional Status following CABG, PTCA, angio				✓				
Stroke						✓		
Hypertension Tx						✓		
Breast, cervical, colorectal, lung cancer rates						✓		
Appendectomy rates						✓		
Cholecystectomy rates						✓		
Pneumonia inpatient						✓		
AIDs survival time						✓		
Enrollee mortality rates				**				✓
Hospital mortality for selected DRGs				✓				✓
Evaluate hosp. for adverse occurence					✓			✓
Select transplant centers on outcomes					✓			
Post-operative wound infection				✓				✓

Process- and Outcome-Based Performance Indicators

Measure	Process-Based Indicators						Outcome-Based Indicators	
	HEDIS 2.0	GHC	United Healthcare Corporation	Florida	Towers-Perrin	Kaiser Northern California	HCFA QARI***	Jackson Hole Group
Unscheduled return to OR				✓				
Dental visit rate							✓	
Utilization								
High Cost/ High Occurence DRGs								
Cerebrovascular	discharges;ALOS; Avg. cost	Number; Rate; ALOS		discharges; ALOS; Avg. Cost		discharges/ 1000; mortality rate		
Respiratory infections/asthma	discharges; ALOS; Avg. cost			discharges; ALOS; Avg. cost				
Chest pain/angina	discharges; ALOS; Avg. cost	Number; Rate; ALOS		discharges; ALOS; Avg. cost		mortality rate		
DRGs		Top 10 Number; Rate; ALOS		Selected DRGs mortality rates	by all maj grps adm/1000; days/1000. ALOS			
Breast, cervical, lung, colorectal cancer						Mortality rate		
AIDs						avg. length of survival		
Selected diagnoses				incidence rates	% of all admissions			
Selected Procedures								
Angioplasty	Number; Rate			Number; Functional status				
Cardiac Cath.	Number; Rate			Number; Functional status				
CABG	Number; Rate	Number; Rate		Number; Functional status		mortality rate		
Cholecystectomy	Number; Rate					ALOS		
Hysterectomy	Number; Rate			X		rate; ALOS		
Laminectomy	Number; Rate			X		Rate; ALOS		
Prostatectomy	Number; Rate							
Total hip		Number; Rate		Functional status				
Appendectomy						Rate; ALOS; Rupture Rate		
Population mortality rates				**				

Process- and Outcome-Based Performance Indicators

Measure	HEDIS 2.0	GHC	United Healthcare Corporation	Florida	Towers-Perrin	Kaiser Northern California	HCFA QARI***	Jackson Hole Group
	Process-Based Indicators						Outcome-Based Indicators	
Inpatient Utilization -- Acute Care								
Total	Discharges;Days; ALOS	Adms; Adm. rate;days; days/1000; ALOS	Admissions/1000; days/1000; ALOS	Discharges;ALOS	Admissions; adm. rate ALOS			
Maternity	Discharges;Days; ALOS	Number; Rate; Days; Days/1000; ALOS		Discharges;ALOS				
Newborns	Discharges;Days; ALOS	Number; Rate;Days; Days/1000; ALOS		Discharges;ALOS				
Med/Surg.	Discharges;Days; ALOS	Number;Rate; Days; Days/1000; ALOS		Discharges;ALOS				
NICU		Number: Rate: Days; Days/1000; ALOS				% of live births		
Ambulatory Care								
Outpatient Visits	Number; Rate			Number				
Emergency Room Visits	Number; Rate	Number; Rate		Number				
Ambulatory Surgery Procedures	Number; Rate	Number; Rate			Number			
Adult primary care		Number; Rate						
Pediatric		Number: Rate			Avg/ enrollee	Number; Rate		
OB/GYN		Number; Rate						
All other specialities		Number; Rate						
Home health		Number; rate			Avg/ enrollee			
Inpatient Utilization -- Non Acute								
Total	Number;. Rate: Days/1000, ALOS	Number; Rate; Days; Days/1000; ALOS		Discharges; Days; ALOS				
Rehab		Number; Rate; Days; Days/1000; ALOS						
SNF		Number; Rate; Days; Days/1000; ALOS						
Maternity								
Total Live Deliveries	Number; Days/1000ALOS	Number; Rate; ALOS		Discharge;ALOS				
C-section	Number; ALOS	Number; Rate; ALOS		Discharge;ALOS				
Vaginal deliveries	Number; ALOS	Number; Rate; ALOS		Discharge;ALOS				

Process- and Outcome-Based Performance Indicators

Measure	HEDIS 2.0	GHC	United Healthcare Corporation	Florida	Towers-Perrin	Kaiser Northern California	HCFA QARI***	Jackson Hole Group
	Process-Based Indicators						**Outcome-Based Indicators**	
Newborns								
Total	Number; Rate; ALOS	Number; Rate; ALOS		Discharge;ALOS				
Complex Newborns	Number; Rate; ALOS	Number; Rate; ALOS		Discharge;ALOS		Rate		
Well newborns	Number; Rate; ALOS	Number; Rate; ALOS		Discharge;ALOS				
Mortality rate						✓		
Mental Health								
Inpatient	Number; Percent	Number; Rate; Days; Days/1000 ALOS		Discharge; ALOS	Admissions/1000;Days/1000			
Day/night care	Number; Percent			Number				
Ambulatory	Number; Percent	Number; Rate		Number	Visits/1000			
Readmission for major affective disorder	Number; Percent	Percent		**				
Follow-up after discharge			Percent					
Suicide			Rate					
Chemical Dependency								
Inpatient	Number; Percent	Number; Rate; Days; Days/1000 ALOS		**				
Day/night care	Number; Percent			**				
Ambulatory	Number; Percent	Number; Rate		**				
Readmission for chemical dependency	Number; Percent	Percent						
Outpatient Drug Utilization								
Avg. Cost Per Member Per Month	✓	✓		✓				
Total prescriptions/enrollee/year	✓	✓		✓				
Access								
Number/percent of primary physicians accepting new patients	✓							
Actual or Avg. Wait time to get an appointment by appointment type	✓							
Percentage of Members with Plan Visit in Previous Three Years (by age)	✓							

Process- and Outcome-Based Performance Indicators

Measure	HEDIS 2.0	GHC	United Healthcare Corporation	Florida	Towers-Perrin	Kaiser Northern California	HCFA QARI***	Jackson Hole Group
	Process-Based Indicators						Outcome-Based Indicators	
Availability of emergency or after hours care	✓	-						
Enrollment and Demographics								
Enrollee Population by Age and Sex	✓	✓						
Percent Change in enrollment	✓	✓						
Disenrollment rates	✓	✓						
Financial Stability								
Total Revenue	✓							
Net Income	✓							
Net Worth	✓							
Debt to Service Coverage	✓							
Overall Loss Ratio	✓							
Administrative Loss Ratio	✓							
Medical Loss Ratio	✓							
Operating Profit Margin	✓							
Days Cash on Hand	✓							
Days in Unpaid Claims	✓							
Admitted Reserves	✓							
State Minimum Reserve Requirement	✓							
Cost Per Member Per Month	✓	✓	✓					
Monthly Premiums (by various family configurations)	✓							

- GHC will be revising their reporting format to match quality measures used in HEDIS 2.0.
- * Indicator will be phased into dataset in second year.
- ** Also includes clinical and health service delivery area of concerns that cannot be translated into specific measures or indicators, such as motor vehicle accidents, pregnancy prevention, precription drug abuse, smoking prevention and cessation, medical problems of the frail elderly, and domestic violence.

Plan-Based Performance Indicators

Indicators	GHAA	EHCVS	CSS/OPM	CalPERS
Patient Characteristics				
Sociodemographic Characteristics				
Family total income before taxes	✓	✓	✓	✓
Current marital status	✓	✓		
Spouse covered in plan?				✓
Children covered in plan?				✓
Home Zip Code	✓	✓		
Age	✓	✓	✓	✓
Spouse's age				✓
Gender	✓	✓	✓	✓
Race/ethnicity	✓	✓		
Number of persons living in household (including yourself)		✓		
Employment Status		✓		✓
Work zip code		✓		
Whose views are expressed in this survey? (e.g. employee, spouse, friend)		✓		✓
Education level	✓	✓		✓
Physical & Psychological Health				
Self health assessment	✓	✓	✓	✓
Limitations of spouse in various activities? (e.g. vigorous activities, lifting groceries)		✓		✓
Limitations in various activities? (e.g. vigorous activities, lifting groceries)		✓		✓
During past 4 wks, any problems with work or daily activities as a result of physical health?		✓		
During past 4 wks, any problems with work or other regular activities as a result of emotional problems?		✓		
During past 4 wks, to what extent have your physical health or emotional problems interfered with your normal social activities with family, etc.		✓		
How much bodily pain experienced in past 4 wks?		✓		

Plan-Based Performance Indicators

Indicators	GHAA	EHCVS	CSS/OPM	CalPERS
During past 4 wks, how much did pain interfere with your normal work?		✓		
During past 4 wks, how much of time have your physical health or emotional problems interfered with your social activities?		✓		
Feelings		✓		
Health now compared to one year ago		✓		✓
Medical Conditions		✓		✓
Health Behaviors		✓		✓
Attitudes & Expectations				
I am very satisfied with the medical care I receive	✓	✓		
There are some things about the medical care I receive that could be better	✓			
The medical care I am receiving is just about perfect	✓			
I am dissatisfied with some things about the medical care I receive	✓			
Structure: Thinking About Your Health Care				
Organization & Financing				
Protection you have against hardship due to medical expenses	✓	✓		
Arrangements for you to get the medical care you need without financial problems	,	✓		
Structure: Thinking About Your Health Insurance Plan				
Rank health plan features			✓	
Would you recommend your current health insurance plan to your family or friends if they needed care?	✓	✓	✓	✓
If cost was not a concern, would you recommend your current health plan to friends, family			✓	
Do you intend to switch to a different health insurance plan when you next have an opportunity?	✓	✓	✓	
Services Covered				
Coverage for prescription drugs				✓
Coverage while traveling				✓
Coverage for long term care				✓
Coverage for mental health, substance abuse				✓

Plan-Based Performance Indicators

Indicators	GHAA	EHCVS	CSS/OPM	CalPERS
Range of services covered by your plan	✓		✓	
Coverage for preventive care and routine office visits	✓			✓
Coverage for illness visits, treatments, or hospitalization	✓	✓		✓
Paperwork				
The forms you must fill out (number, ease of completing them)	✓	✓	✓	
Length of time you spend filling out claims forms or other paperwork	✓	✓		✓
The way your plan handles the forms and other paperwork required when you go for care	✓	✓		✓
Costs ***of Care***				
Overall, considering the value of the care and services you get for what you pay, how would you rate:		✓	✓	
The part of the premium you pay for covered services?	✓	✓	✓	
Monthly payment for coverage, even if you pay nothing				✓
Have you ever postponed medical care because of cost while still covered?				✓
The amount you pay out-of-pocket (e.g. copay, deductibles)	✓	✓	✓	✓
Information				
Availability of information from your plan about eligibility, covered services, or administrative issues	✓	✓	✓	
Availability of answers to questions about benefits or services covered	✓	✓	✓	
Availibility of information **from** you doctor or plan about costs of care	✓	✓	✓	
Explanation from your plan on how the system works			✓	
Management of Coverage--Problems (big, small, none)				
Confusion about what services coveted under plan		✓		
Disapproval of treatment or services recommended by your doctor		✓		
Confusion about necessary paperwork to get treatment		✓		
Having to pay for services that have not been approved by your plan		✓		
What was the most important reason for choosing your health plan?				✓
Children's coverage, overall **qualtity**		✓		

Plan-Based Performance Indicators

Indicators	GHAA	EHCVS	CSS/OPM	CalPERS
Insurance Plan Overall	✓	✓	✓	✓
Have you or immediate family been hospitalized overnight in past year under current coverage?			✓	
Usage of covered services since enrollment	✓		✓	✓
How long enrolled in current plan	✓	✓	✓	✓
During past six months, did you choose to use services of provider outside of plan?		✓		
How many people in immediate family are covered?			✓	
What type(s) of professionals did you see outside the plan and for how many visits?		✓		
Access				
Overall	✓		✓	
Convenience of location of the doctor's office	✓	✓		✓
Access to hospital care if you need it	✓	✓	✓	
Access to specialty care if you need it	✓	✓	✓	
Access to medical care in an emergency	✓	✓	✓	
Arrangements for making appointments for medical care by phone	✓	✓		
Length of time spent waiting at the office to see the doctor	✓	✓	✓	✓
Convenience of hours when the doctor's office is open	✓	✓	✓	✓
Length of time you wait between making an appointment for routine care and the day of your visit	✓	✓		
Length of time you wait when going for routine care (e.g. physical)	✓	✓	✓	✓
when going for sick care (e.g. like treatment for a sore throat)		✓	✓	
when going for urgent care (e.g. emergency room)		✓		✓
Availability of medical information or advice by phone	✓	✓	✓	
Access to medical care whenever you need it	✓	✓		
How often do you see same doctor when you go for medical care	✓	✓		

Plan-Based Performance Indicators

Indicators	GHAA	EHCVS	CSS/OPM	CalPERS
Services available for getting prescriptions filled	✓	✓		
Continuity & Choice				
Arrangements for choosing a personal doctor	✓	✓		✓
Choice of primary care doctors			✓	
Information your health plan provides to help you choose a primary care doctor			✓	
Ease of choosing or changing your primary care doctor			✓	
Did you change doctors, why?				✓
Ease of getting referral to specialist				✓
Choice of specialist doctors			✓	
Ease of seeing the doctor of your choice	✓	✓	✓	
Satisfaction with doctor seen most frequently				✓
Number of doctors you have to choose from	✓	✓		
Overall			✓	
Process				
Technical Aspects of Care				
Thoroughness of examinations and accuracy of diagnosis	✓	✓	✓	
Skill, experience, and training of doctors	✓	✓		✓
Thoroughness of treatment	✓	✓	✓	
Care provided by nurse practitioner?				✓
Quality of specialist you are referred to				✓
Interpersonal Aspects of Care				
Attention given to what you have to say	✓	✓	✓	✓
Explanations of medical procedures and tests	✓	✓	✓	✓
Personal involvement in decision-making			✓	
Friendliness and courtesy shown to you by doctors and staff	✓	✓	✓	✓

Plan-Based Performance Indicators

Indicators	GHAA	EHCVS	CSS/OPM	CalPERS
Personal interest in you and your medical problems	✓	✓	✓	
Reassurance and support offered to you by doctors and staff	✓	✓	✓	
Respect shown to you, attention to your privacy	✓	✓	✓	✓
Amount of time you have with doctors and staff during a visit	✓	✓	✓	✓
Management of Care--Problems (big, small, none) :				
Limits in choice of doctors		✓		
Limited freedom to receive treatment you and your doctor believe is necessary		✓		
Delays in medical care while waiting for plan approval		✓		
Lack of coordination between the doctors or staff who treat you		✓	✓	✓
Poor communication between doctors or staff		✓		
Lack of services tailored specifically to meet your needs		✓		
Lack of information to help you manage or prevent medical problems		✓		
Lack of reminders or encouragement to use timely preventative services		✓	✓	✓
Preventive Care				
Advice you get about ways to avoid illness and stay healthy	✓	✓	✓	
If you or your spouse have been pregnant while in your health plan, when did you or your spouse first see a health professional about the pregnancy?				✓
Have you seen a doctor or other health professional any time in the past 3 years?				✓
Have you had your blood pressure taken by a doctors or other health professional any time in the past 2 years?				✓
Have you had your blood cholesterol measured by a doctor or other health professional any time in the past 5 years?				✓
Have you had a pap smear at any time in the past 3 years?				✓
Have you had a mammogram taken by a doctor or other health professional any time in the past 2 years?				✓
Has a physician or other health professional discussed any of these health education topics (e.g. exercise., STDs)				✓
Have you participated in any health improvement programs offered in plan				✓
Satisfaction with health improvement programs				✓

Plan-Based Performance Indicators

Indicators	GHAA	EHCVS	CSS/OPM	CalPERS
Hospitals				
Satisfaction with medical care				✓
Courtesy/friendliness of nurses & staff				✓
Hospital environment (e.g. food, noise level)				✓
Staff's attention to your privacy				✓
Feel sent home too soon?				✓
When was most recent hospitalization				✓
Overall satisfaction	✓			
Outcomes				
The outcomes of your medical care, how much you are helped	✓	✓	✓	
Overall quality of care and services	✓	✓	✓	
How well your care meets your needs				
The benefits of your care, compared to any setbacks it has caused you				
Comments		✓		✓
Overall Satisfaction	✓		✓	

Survey Elements/Indicators
Perception of Problem
▸ Definition of need for health care reform
▸ Percent who feel amount of US health spending (PercentGDP) is too little/much, worth it
▸ Percent who prefer controlling national health spending or providing health insurance for all through taxes
▸ Percent whose working household reports cut in benefits or was asked to pay more of insurance costs
▸ Assuming no major changes to current health system,
• Percent whose greatest concern is about insurance coverage
• Percent whose greatest concern is about care affordibility
– Percent who report problems paying medical bills in past year; by insurance status
– Percent with no problems paying bills
– Demographics of people who did and did not have problems paying medical bills in past year:
° Percent reporting problems paying medical bills in past year
° by age, sex, children <18y, race, employment status
° by income level
– Percent whose household has been seriously hurt by medical bills
• Percent whose greatest concern is about a family member having to accept changes in coverage
Perception of Causes
▸ Factors contributing to high health care costs (e.g. malpractice lawsuits) percent saying factor contributes a great deal
▸ Percent people who have a great deal of confidence in doctors, insurance companies, pharmaceuticals

Survey Elements/Indicators
Perception of Possible Solutions
♦ Percent people willing to pay additional taxes to finance national plan
• Percent who will pay $50/mo additional taxes
• Percent who will pay $20/mo additional taxes
• Percent people willing to pay more than $200 per year to suppor national plan
• Percent people who perceive themselves as overly taxed by government
♦ Percent willing to accept queing and other implicit rationing (e.g. physicia choice limits, government price controls)
♦ Percent prefer managed competition
♦ Percent prefer government control
• Percent people who feel a great deal of confidence in federal government
• Percent feel management should be by government, by private insurance
♦ Percent willing to join HMOs
♦ Percent satisfied with different plan types
♦ Percent people supporting adoption of comprehensive national healtl insurance
♦ Percent people who believe US spends too little on welfare
♦ Percent feel rationing is necessary or unnecessary
♦ Percent Americans preferring Canadian Health System (year) according tc income group and race
• Percent Americans, Canadians satisfied with nation's direction (ove time)
• Percent Americans, Canadians optimistic about coming year (over time)
♦ In ten nations, Percent people who feel minor, fundamental, or total change! to their health system are needed
♦ Perceptions of most important health care issue facing nation at present time
. High cost of care
• Problem of uninsured
• Access to health care
• Quality of health care
• Other/not sure

Survey Elements/Indicators
‣ Preference for financing health care • Employer mandate • Single Payer • Tax credits . Not sure
‣ Voter's preference for managed competition (percent), regulation/price setting (percent) • by age of all voters • by HMO/managed care member, nonmember • by level of education
‣ Voters' support for global health spending cap by age, income, race, insurance status • oppose • favor in theory • favor even with constraints
‣ Percent willing to pay additional taxes • liquor and cigarettes • income tax for those ~$50,000 • hospital charges, MD fees, and Insurers • Health Insurance Benefits • Employers • National Sales Tax • Higher Medicare fees for upper-income elderly • employees • income tax for those >$25,000

- ♦ Timeliness
- ♦ Exclusion of results of surveys with less than 1,000 randomly selected participants

Methodological concerns **Blendon** (Blendon, and **Donelan,** 1990) **(Blendon** and Hyams, 1993) raises include:

- ♦ Sampling errors even after weighting for race, sex, and age
- ♦ Underrepresentation of population due to use of phone surveys

Key Indicators

Indicators	Health Insurance	Access to Care	Utilization of Health Services & Clinical Prevention Services	Health Status	Public Perceptions & Opinions	Provider Behavior & Attitudes	Health Expenditures	Consumer Satisfaction With Health Plans	Quality of Care & Outcomes of Care
Adults									
Years of Healthy Life		?		✓					
Percent Adults 65 years Immunized		✓	✓	✓					
Activity Limitations/Restrictions		?		✓					
Percent Persons Receiving Digital Rectal Exam for Colon/Rectal Cancer		✓	✓	✓					
Percent Persons Receiving Blood Stool Test for Colon Rectal Cancer		✓	✓	✓					
Percent Persons Receiving Proctoscopic Exam for Colon/Rectal Cancer		✓	✓	✓					
Cholesterol Screening Rate		✓	✓						
Hypertension Screening Rate		✓	✓						✓
Congenital Syphilis		✓	✓	✓					✓
Estimated Access-Related Excess Mortality		✓		✓					✓
Percent Adults With No Teeth		✓		✓					✓
Dental Health		✓	✓	✓					✓
Tuberculosis Incidence		✓		✓					

Key Indicators

Indicators	Health Insurance	Access to Care	Utilization of Health Services & Clinical Prevention Services	Health Status	Public Perceptions & Opinions	Provider Behavior & Attitudes	Health Expenditures	Consumer Satisfaction With Health Plans	Quality of Care & Outcomes of Care
Injury				✓					
Cardiovascular Disease Incidence		✓		✓					
Premature Chronic Disease Mortality		✓		✓					✓
AIDS Incidence		✓		✓					
Sexually Transmitted Disease Incidence			✓	✓					
Cigarette Smoking			✓	✓					
Average Cost Per Member Per Month							✓		
Actual or Average Wait Time to get an Appointment		✓						✓	
Admissions for Referral-Sensitive Surgeries		✓	✓				✓		✓
Avoidable Hospitalizations for Acute Conditions		✓	✓				✓		✓
Hospitalizations for Ambulatory Care Sensitive Conditions		✓	✓				✓		
Ambulatory Chemical Dependency (Admissions/1000;ALOS)		✓	✓						
Asthma Inpatient Rate			✓						✓

Key Indicators

Indicators	Health Insurance	Access to Care	Utilization of Health Services & Clinical Prevention Services	Health Status	Public Perceptions & Opinions	Provider Behavior & Attitudes	Health Expenditures	Consumer Satisfaction With Health Plans	Quality of Care & Outcomes of Care
Medicine/Surgery Admissions/1000		✓	✓						
Adult Primary Care Visits/1000		✓	✓						
Emergency Room Visits/1000		✓	✓						
Mental Health Hospital Readmissions			✓						✓
Inpatient Mental Health (Admissions/1 000;ALOS)		✓	✓						
Ambulatory Mental Health (Admissions/1 000;ALOS)		✓	✓						
Substance Abuse Readmissions			✓						✓
Inpatient Chemical Dependency (Admissions/1 000;ALOS)		✓	✓						
Outpatient Visits/1000		✓	✓						
Pediatrics									
Percent Children Immunized		✓	✓	✓					
Incidence of Vaccine-Preventable Childhood Diseases		✓		✓					✓
Percent Children Tested & With Blood Lead Levels Managed		✓	✓	✓					
[illegible]		✓		✓					

Key Indicators

Indicators	Health Insurance	Access to Care	Utilization of Health Services & Clinical Prevention Services	Health Status	Public Perceptions & Opinions	Provider Behavior & Attitudes	Health Expenditures	Consumer Satisfaction With Health Plans	Quality of Care & Outcomes of Care
Pediatric Visits/1000		✓	✓						
Perinatal									
Incidence of Low Birth Weight (<2500 g)		✓		✓					
Perinatal Mortality		✓		✓					✓
Inpatient Infant Mortality		✓		✓					✓
Infant Mortality (<1 year)		✓		✓					✓
NICU Admissions/1000		✓	✓						
Women's Health									
OB/GYN Visits/1000		✓	✓						
Percent Women Receiving Breast Cancer Screening		✓	✓	✓					
Incidence of Late-Stage Breast Cancer		✓		✓					✓
Incidence of Late-Stage Cervical Cancer		✓		✓					✓
Percent Women 18+ Years Reporting Pap Smear		✓	✓	✓					
Percent Women With At Least One Family Planning Visit		✓	✓	✓					

Key Indicators

Indicators	Health Insurance	Access to Care	Utilization of Health Services & Clinical Prevention Services	Health Status	Public Perceptions & Opinions	Provider Behavior & Attitudes	Health Expenditures	Consumer Satisfaction With Health Plans	Quality of Care & Outcomes of Care
Percent Birth Unintended at the Time of Conception		✓							✓
Births to Adolescents				✓					
Prenatal Care in First Trimester/Lack of Prenatal Care		✓	✓	✓					✓
Percent Pregnant Women Obtaining Adequate Care		✓	✓	✓					
C-Section Rate			✓						✓
Public Perceptions									
Feel Amount of US Health Spending (%GDP) is Too Little/Too Much					✓		✓		
Prefer Controlling National Health Spending/Providing for All Via Taxes					✓		✓		
Percentage of Population Who Did & Did Not Have Problems Paying Medical Bills Last Year		✓			✓				
Percentage Population Having Great Deal of Confidence in Health System					✓				
Percent Willing to Accept Queing & Other Implicit Rationing					✓				
Percent Willing to Join HMOs					✓				
Perceptions of Most Important Health Care Issue Facing Nation at Present					✓				

Key Indicators

Indicators	Health Insurance	Access to Care	Utilization of Health Services & Clinical Prevention Services	Health Status	Public Perceptions & Opinions	Provider Behavior & Attitudes	Health Expenditures	Consumer Satisfaction With Health Plans	Quality of Care & Outcomes of Care
High Cost of Care, Percentage					✓		✓		
Problem of Uninsured, Percentage	✓				✓				
Access to Health Care, Percentage		✓			✓				
Quality of Health Care, Percentage					✓				✓
Consumer Satisfaction									
Affordability of Care		✓					✓	✓	
Overall Satisfaction With Health Plan								✓	
Satisfaction Re: Consumer Support/Education								✓	
Satisfaction Re: Coverage Levels		✓						✓	
Satisfaction Re: Access		✓						✓	
Satisfaction Re: Continuity & Choice		✓						✓	
Satisfaction With & Utilization of Preventative Care		✓	✓					✓	✓
Satisfaction With & Utilization of Hospitals		✓	✓					✓	✓
Perception of Outcomes								✓	✓

Key Indicators

Indicators	Health Insurance	Access to Care	Utilization of Health Services & Clinical Prevention Services	Health Status	Public Perceptions & Opinions	Provider Behavior & Attitudes	Health Expenditures	Consumer Satisfaction With Health Plans	Quality of Care & Outcomes of Care
Satisfaction With Provider Qualifications								✓	
Spending									
Health spending as a Percentage of GDP							✓		
Average Per Capita Expenditures							✓		
Average Out-of-Pocket Spending as a Percentage of Income							✓		
Percentage of Uninsured	✓						✓		
Federal Medicaid Spending Relative to Total and Private Spending	✓						✓		
Medicaid Spending Relative to Total Spending	✓						✓		
Spending By Type of Service (As Percentage of Spending on All Types)			✓				✓		
Spending By Type of Provider (As Percentage of Spending on All Types)			✓				✓		

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